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TAYLOR T. JOHNSON

BRIEF BIOGRAPHY

Dr. Taylor T. Johnson, PE, is A. James and Alice B. Clark Foundation Chancellor Faculty Fellow, Associate Dean for Graduate Education and Postdoctoral Affairs, Director of Graduate Studies (DGS), and Professor in the Department of Computer Science (CS) in the College of Connected Computing (CCC) at Vanderbilt University. He directs the Verification and Validation for Intelligent and Trustworthy Autonomy Laboratory (VeriVITAL), is a Senior Research Scientist in the Institute for Convergent Software Integrated Systems (ICONS), holds a secondary appointment as Professor of Electrical and Computer Engineering (ECE) in the Vanderbilt University School of Engineering (VUSE), and is a Faculty Affiliate of the Data Science Institute (DSI). Dr. Johnson was previously an Assistant Professor of Computer Science and Engineering (CSE) at the University of Texas at Arlington (UT-Arlington). Dr. Johnson earned PhD and MSc degrees in Electrical and Computer Engineering (ECE) from the University of Illinois at Urbana-Champaign, where he worked in the Coordinated Science Laboratory with Prof. Sayan Mitra, and earlier earned a BSEE from Rice University. Dr. Johnson worked in industry for Schlumberger at various times between 2005 and 2010 developing novel embedded control systems for downhole tools.

Dr. Johnson's research focus is developing methods to enable safe, secure, and trustworthy artificial intelligence (AI), with applications ranging from autonomous cyber-physical systems (CPS) to biotechnology and security. Dr. Johnson develops formal verification techniques and software tools in his work, focusing most recently on AI and machine learning (ML) systems, such as neural networks and neurosymbolic methods used for tasks such as sensing/perception through planning/control in autonomous CPS, as well as in medical imaging analysis (segmentation) and cybersecurity (malware classification). Dr. Johnson has published over 190 papers on these methods and their applications across domains, such as power and energy systems, aerospace and avionics systems, automotive systems, transportation systems, biotechnology, robotics, and security, four of which were recognized with Best Paper Awards, and three of which were awarded Best Software Artifact or Repeatability Awards. Dr. Johnson is a 2018 and 2016 recipient of the AFOSR Young Investigator Program (YIP) award, a 2015 recipient of the National Science Foundation (NSF) Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII) award, and his research is / has been supported by AFRL, AFOSR, ARO, CEA, DARPA, DOE, NSA, NSF (CISE CCF/FMitF, CISE CCF/SHF, CISE CNS/CPS, ENG ECCS/EPCN), MathWorks, NVIDIA, ONR, Toyota, and USDOT, totaling $\sim \$37.5$ million in sponsored research projects. Dr. Johnson has served on program committees and in different organizational roles for venues such as AAAI, CAV, CVPR, EMSOFT, FORMATS, HSCC, ICCPS, ICCV, IJCAI, NFM, SAIV, SPIN, RTSS, UAI, among many others, is Associate Editor of Software Tools for Technology Transfer (STTT) and Annals of Mathematics and Artificial Intelligence (AMAI), is co-founder of the International Symposium on AI Verification (SAIV), the Verification of Neural Networks Competition (VNN-COMP), and the International Competition on Verifying Continuous and Hybrid Systems (ARCH-COMP) category on Artificial Intelligence and Neural Network Control Systems (AINNCS). Mentees and alumni of Dr. Johnson's research group have received awards such as DoD NDSEG, DOE CSGF, AFOSR YIP, NSF CAREER, NSF CRII, among others, and hold roles in industry (Amazon, Google, Meta, MathWorks, Visa, etc.) and academia (Augusta, Lancaster, Mizzou, U Dayton, UNL, USF, UTPB, etc.). Dr. Johnson is a member of AAAI, AAAS, ACM, AIAA, IEEE, and SAE, and is a registered Professional Engineer (PE) in Tennessee, license number 122259.

EDUCATION

2013 **PhD, Electrical and Computer Engineering**, *University of Illinois at Urbana-Champaign*, Urbana, IL.
- Dissertation: *Uniform Verification of Safety for Parameterized Networks of Hybrid Automata*
- Committee: Sayan Mitra (Adviser), Tarek Abdelzaher, William H. Sanders, Mahesh Viswanathan

2010 **MSc, Electrical and Computer Engineering**, *University of Illinois at Urbana-Champaign*, Urbana, IL.
- Thesis: *Fault-Tolerant Distributed Cyber-Physical Systems: Two Case Studies*
- Adviser: Sayan Mitra

2008 **BSEE, Electrical and Computer Engineering**, *Rice University*, Houston, TX.
- Senior Project: *Sensorless Synchronous Motor Control in Downhole Tools* (with Frank Havlak and Elica Skorcheva at Rice, and Fadi Abousleiman, Farès Hantous, and Slim Besbes at Supélec, Gif-sur-Yvette, France)
- Advisers: Albert Hoefel and Peter Swinburne (Schlumberger); J.D. Wise and Fathi H. Ghorbel (Rice)

ACADEMIC AND RESEARCH POSITIONS

8/2026 – Present **Professor**, *Vanderbilt University*, Computer Science, Nashville, TN.
- Associate Dean for Graduate Education and Postdoctoral Affairs, College of Connected Computing (2025-on)
- Director of Graduate Studies (DGS) in Computer Science (2023-on)
- Director of Master of Engineering (MEng) Program in Cyber-Physical Systems (2021-on)
- A. James and Alice B. Clark Foundation Chancellor Faculty Fellow (2022-on)
- Senior Research Scientist in the Institute for Convergent Software Integrated Systems (ICONS)
- Director of VeriVITAL: The Verification and Validation for Intelligent and Trustworthy Autonomy Laboratory

8/2021 – 8/2026 **Associate Professor**, *Vanderbilt University*, Computer Science, Nashville, TN.
- Tenured August 2021
- Associate Chair of Computer Science (2024-2025)

8/2016 – 8/2021 **Assistant Professor**, *Vanderbilt University*, Electrical Eng. and Computer Science, Nashville, TN.
- Appointments in Computer Science (CS), Computer Engineering (CmpE), and Electrical Engineering (EE)

9/2013 – 8/2016 **Assistant Professor**, *University of Texas at Arlington*, Computer Science and Eng., Arlington, TX.
- Courtesy Appointment: Electrical Engineering

5/2015-5/2016 **Adjunct Faculty**, *University of Connecticut*, UTC Institute for Advanced Systems Engineering.
- Supervised capstone projects for two teams, SE 5309: Capstone Projects for Embedded Systems.
- Taught an all online summer 2015 graduate course for UTC engineers, SE 5302: Formal Methods.

Summers 2014 and 2015 **Visiting Research Faculty**, *AFOSR Summer Faculty Fellowship Program (SFFP) and AFRL Visiting Faculty Research Program (VFRP), Information Directorate, Air Force Research Laboratory*, Rome, NY.
- Research with Steven Drager and Stanley Bak to develop formal verification methods for hybrid systems and apply them to Air Force CPS, resulting in papers [C9,C10,C11,C13,J4] and software tools [S3,S5].

8/2008 – 8/2013 **Research and Teaching Assistant**, *University of Illinois at Urbana-Champaign*, Electrical and Computer Engineering, Urbana, IL.

Summer 2011 **Visiting Graduate Researcher**, *Air Force Summer Faculty Fellowship Program, Space Vehicles Directorate, Air Force Research Laboratory*, Albuquerque, NM.
- Research with R. Scott Erwin and Prof. Sayan Mitra to develop and apply hybrid systems abstraction and verification techniques to Air Force space systems problems, particularly verification of conjunction (collision) avoidance for satellite rendezvous maneuvers, resulting in paper [C5].

INDUSTRY AND STARTUP POSITIONS

December 2017 – Present **Founder and Chief Technology Officer (CTO)**, *Verivital, LLC*, Nashville, TN.
- Research, development, commercialization, and consulting activities on verification and validation results arising from our research group, particularly formal verification for autonomous cyber-physical systems.
- Founded as a Tennessee limited liability company (LLC).

May 2017 – Present **Founder and President**, *CelerFama, Inc.*, Nashville, TN.
- Technology and business development for automating data entry for electronic health records (EHRs) and electronic medical records (EMRs) using natural language processing (NLP), based on technology transfer of patent application [P2].
- Founded as a Tennessee class-C corporation.

Summer 2010 **Intern in Electrical Engineering**, *Schlumberger Technology Corporation*, Sugar Land, TX.
- Designed, implemented, and analyzed a real-time state estimator for maximum available power produced by a turbo-alternator, used for stalling protection of a turbine in a power control loop outside already cascaded velocity and torque control loops for permanent magnet synchronous motor (PMSM) control of a pump. This work resulted in a conference publication [LC1]—that won a best paper award—and patent [P1].

Summer 2008 **Intern in Electrical Engineering**, *Etudes et Productions Schlumberger*, Clamart, France.
- Analyzed and modeled analog and mixed-signal electronics designs for correctness by hand and using computer tools like PSpice with Monte Carlo simulation.

Summer 2007 **Intern in Computer Engineering**, *Schlumberger Technology Corporation*, Sugar Land, TX.
- Implemented new features on FPGAs in VHDL used in Space Vector Pulse Width Modulation (SV-PWM) control of permanent magnet synchronous motors (PMSMs).

Summer 2006 **Intern in Computer Engineering**, *Schlumberger Technology Corporation*, Sugar Land, TX.
- Designed, implemented, tested, and documented a networked boot loader and application framework in 8051 assembly and C for a microcontroller, utilizing CAN for networking via an SPI interface to a CAN transceiver.

Summer 2005 **Intern in Computer Science**, *Schlumberger Technology Corporation*, Sugar Land, TX.
- Designed and implemented an intranet web application in PHP and Javascript (AJAX) with a SQL database backend system to gather, store, and report static analysis metrics on embedded systems source code.

AWARDS AND HONORS

6/2026 **Best Paper Award**, Synthetic & Adversarial ForEnsics (SAFE) Workshop, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2026).
Award corresponding to paper [W34].

5/2025 **Best Artifact Award**, 16th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2025).
Award corresponding to artifact and repeatability evaluation for paper [C53].

11/2024 **Best Paper Award**, 6th International Workshop on Formal Methods for Autonomous Systems (FMAS 2024).
Award corresponding to paper [W31].

10/2023 **Outstanding Reviewer Award**, ACM SIGBED International Conference on Embedded Software (EMSOFT 2023).
Award for outstanding service in the EMSOFT reviewing process.

7/2023 **Distinguished Paper Award**, 9th IEEE International Conference on Space Mission Challenges for Information Technology (SMC-IT 2023).
Award corresponding to paper [C39].

9/2022 **Best Artifact Award**, 20th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS 2022).
Award corresponding to artifact and repeatability evaluation for paper [C34].

12/2021 **Trusted AI at Scale Challenge Series Awardee**, Air Force Research Laboratory (AFRL)/Air Force Office of Scientific Research (AFOSR)/Griffiss Institute Innovare Advancement Center.
Received grant award [CG25].

8/2018 **Junior Faculty Teaching Fellow for 2018-2019**.
Vanderbilt University Center for Teaching (CFT)

10/2017 **2018 Young Investigator Research Program (YIP) Award**, Air Force Office of Scientific Research (AFOSR).
Received grant award [CG17].

8/2017 **Southeastern Conference (SEC) Faculty Travel Program Award for 2017-2018**.
Travel support to visit Dr. Dylan Shell at Texas A&M University to collaborate on distributed and swarm robotics.

4/2016 **Best Software Repeatability Evaluation Award for [C14]**, 19th ACM International Conference on Hybrid Systems: Computation and Control (HSCC), Cyber-Physical Systems Week (CPSWeek) 2016, Vienna, Austria.

2/2016 **2016 Young Investigator Research Program (YIP) Award**, Air Force Office of Scientific Research (AFOSR).
Received grant award [CG9].

6/2015 **Computer and Information Science and Engineering (CISE) Research Initiation Initiative (CRII) Award**, National Science Foundation (NSF), Computer and Information Science and Engineering (CISE).
Received grant award [CG11].

Summer 2015 **Fellow**, *Air Force Research Laboratory, Information Directorate*, Air Force Office of Scientific Research (AFOSR), Summer Faculty Fellowship Program (SFFP), Rome, NY.
Received grant award [CG3].

3/2013 **Yi-Min Wang and Pi-Yu Chung Endowed Research Award**, *Electrical and Computer Engineering, University of Illinois at Urbana-Champaign*, Urbana, IL.

3/2013 **ECE Rambus Fellowship in Electrical and Computer Engineering**, *Electrical and Computer Engineering, University of Illinois at Urbana-Champaign*, Urbana, IL.

6/2012 **Best Overall Paper Award of Three Collocated Conferences for [C4]**, *IFIP International Conference on Formal Techniques for Distributed Systems: Joint International Conference of 14th Formal Methods for Open Object-Based Distributed Systems and 32nd Formal Techniques for Networked and Distributed Systems (FORTE/FMOODS 2012), of the 7th International Federated Conference on Distributed Computing Techniques (DisCoTec 2012)*, KTH, Stockholm, Sweden.

2012 – 2013 **Computer Engineering Fellowship Sponsored by Intel Corporation**, *Electrical and Computer Engineering, University of Illinois at Urbana-Champaign*, Urbana, IL.

2/2011 **Best Paper Award for [LC1]**, *2nd IEEE Power and Energy Conference at Illinois (PECI)*, Urbana, IL.

12/2009 **Most Interesting Cyber-Physical Systems Research Problem Award for [E1]**, *30th IEEE Real-Time Systems Symposium (RTSS)*, Washington, DC.

2006 **First Place Team, AMD Digital Logic Design Competition**, *Rice University*, Houston, TX.
Teammates: Brent Stephens and Barron Stone

2004 – 2008 **Coca-Cola Scholars Scholarship**.

2004 – 2008 **Robert C. Byrd Honors Scholarship**.

2004 – 2008 **Bluebonnet Electric Cooperative Scholarship of Excellence**.

2004 – 2008 **Glaser Family Charitable Foundation Scholarship**.

2004 – 2008 **USA Funds Access to Education Scholarship**.

2004 **Texas Society of Professional Engineers Scholarship**, *Brazos County Chapter, TX*.

2004 **Second Place in Computer Science**, *Texas State Science and Engineering Fair*, Arlington, TX.

2003 **Finalist in Computer Science**, *Intel International Science and Engineering Fair*, Cleveland, OH.

STUDENT AWARDS AND HONORS

1/2025 **SIU Prize, Computer Science Season 1 Gold Prize for "Verification of Learning-Enabled Cyber-Physical Systems," Saigon International University**, *Hoang-Dung Tran (DA4), January 2025*.

5/2024 **DOE CSGF Fellowship Award for Anne Tumlin[†], Department of Energy (DOE) Computational Science Graduate Fellowship (CSGF) Program**, *Anne Tumlin (DS1), May 2024*.

5/2022 **C. F. Chen Best Paper Award Honorable Mention for Tianshu Bao[†] for Paper [C32], Vanderbilt Computer Science**, *May 2022*.

5/2021 **IEEE Outstanding Ph.D. Dissertation Award for "Verification of Learning-Enabled Cyber-Physical Systems," IEEE Technical Committee on Cyber-Physical Systems (TCCPS)**, *Hoang-Dung Tran (DA4), May 2021*.

4/2021 **NDSEG Fellowship Award for "Safe and Robust Reinforcement Learning to Quantify Risk in Intelligent Systems," National Defense Science and Engineering Graduate (NDSEG) Fellowship Program**, *Preston Robinette (DA11), April 2021*.

4/2019 **NDSEG Fellowship Award for "Safe and Robust Reinforcement Learning for Autonomous Distributed Cyber-Physical Systems," National Defense Science and Engineering Graduate (NDSEG) Fellowship Program**, *Nathaniel Hamilton (DA6), April 2019*.

12/2014 **3rd Place in US/India Chamber of Commerce Spirit of Innovation Competition**, *Amol Vengurlekar (MA1), Ruoshi Zhang (MA2), Luan Viet Nguyen (DA2), and Eric Nelson for project related to paper [W2], which came with a $1000 award*.

4/2014 **NSF Graduate Research Fellowship Program (GRFP) Honorable Mention**, *Shamina Shahrin Hossain (MP1), April 2014*.

TEACHING EXPERIENCE

Vanderbilt University

Spring 2026 **Automated Verification (CS6315)**, *Instructor*.
23 students

Fall 2025 **Special Topics: Formal Methods — Safe and Trustworthy AI (CS3892/CS5892)**, *Instructor*, New course preparation: project course on formal methods for safe and trustworthy AI, covering neural network verification, model checking, theorem proving, and integration with LLMs.
13 students

Spring 2025 **Automated Verification (CS6315)**, *Instructor*.
32 students

Fall 2024 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*.
75 students total: 25 first-year students each in 3 one credit hour modules taught over the semester

Spring 2024 **Automated Verification (CS6315)**, *Instructor*.
29 students

Fall 2023 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*.
75 students total: 25 first-year students each in 3 one credit hour modules taught over the semester

Spring 2023 **Automated Verification (CS6315)**, *Instructor*.
15 students

Spring 2023 **Automated Verification (CS6315)**, *Instructor*.
17 students, online-only course as part of online MSc/PhD programs

Fall 2022 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*.
75 students total: 25 first-year students each in 3 one credit hour modules taught over the semester

Spring 2022 **Automated Verification (CS6315)**, *Instructor*.
12 students

Spring 2022 **Automated Verification (CS6315)**, *Instructor*.
22 students, online-only course as part of online MSc/PhD programs

Fall 2021 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*.
75 students total: 25 first-year students each in 3 one credit hour modules taught over the semester

Fall 2021 **Computer Networks (CS5283)**, *Instructor*.
26 students, online-only course as part of online MSc program

Spring 2021 **Automated Verification (CS6315)**, *Instructor*.
10 students

Fall 2020 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*.
80 students total: 25-30 first-year students each in 3 one credit hour modules taught over the semester

Summer 2020 **Computer Networks (CS5283)**, *Instructor*, Developed asynchronous content for this graduate-level course on computer networks as a part of Vanderbilt's new online MSc in computer science.
7 students, online-only course

Spring 2020 **Machine Learning Verification (CS8395)**, *Instructor*, Developed research seminar course on formal methods, verification, and software engineering for machine learning systems, building on our group's and others' recent results in this growing area.
10 students

Fall 2019 **Digital Systems (EECE2123)**, *Instructor*, Developed curriculum, assignments, lab assignments, and taught the first iteration of this new core undergraduate EECS course that replaced existing Computer Organization (CS2231) and Digital Logic (EECE2116) courses and labs.
33 students in EECE2123-02 section, and 115 students in 9 laboratory sections of EECE2123L

Fall 2019 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*.
80 students total: 25-30 first-year students each in 3 one credit hour modules taught over the semester

Spring 2019 **Automated Verification (CS6315)**, *Instructor*.
30 students, 25 graduate, 5 undergraduate

Fall 2018 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*, Redesigned curriculum to utilize Python programs to control mobile aerial robots (DJI Tello quadcopter drones), emphasizing cyber-physical and computational thinking.
80 students total: 25-30 first-year students each in 3 one credit hour modules taught over the semester

Spring 2018 **Computer Networks (CS4283/CS5283)**, *Instructor*.
35 students (25 undergraduate, 10 graduate)

Fall 2017 **Discrete Event Systems (CS6375)**, *Instructor*.
9 students

Fall 2017 **Introduction to Engineering, Computer Science Module (ES140x)**, *Instructor*.
75 students total: 25 first-year students each in 3 one credit hour modules taught over the semester

Spring 2017 **Automated Verification (CS6315)**, *Instructor*.
9 students

Fall 2016 **Computer Organization (CS2231)**, *Instructor*, This course's student results were used in the 2017 Accreditation Board for Engineering and Technology (ABET) Accreditation for the Computer Science (CS) and Computer Engineering (CmpE) program evaluations.
35 students

Executive Education and Short Courses

Summer 2026 **Formal Methods & AI-Assisted Verification (FMAIV)**, *Instructor*, United States Coast Guard Academy (USCGA), Four-day hands-on short course (May 26–29, 2026), co-taught with Ben Wooding, covering SAT/SMT solving, model checking, interactive theorem proving, program and high-assurance verification, and (final day) neural network verification and AI-assisted proof.
`https://ttj.github.io/fmaiv/`

Fall 2020 **SAE C1876: Formal Methods for Functional Safety and Security in Cyber-Physical Systems**, *Instructor*, SAE International, 3-day course on formal methods, verification, and validation (V&V) in the automotive domain, arranged with feedback from DARPA (Raymond Richards), NSF (Jeremy Epstein), SAE, and the National Motor Freight Traffic Association (NMFTA) as a foundational background course for helping transition the seL4 microkernel into usage in automotive systems.
`https://www.sae.org/learn/content/c1876/`

University of Connecticut

Spring 2016 **Capstone Projects for Embedded Systems (SE5309), United Technologies Corporation (UTC), Institute for Advanced Systems Engineering (IASE)**, *Adjunct Faculty; Capstone Project Mentor*, Supervised two student teams for capstone embedded system design projects using formal methods concepts and tools as a part of their Embedded Systems Graduate Certificates.
6 students, online-only course

Summer 2015 **Formal Methods (SE5302), United Technologies Corporation (UTC), Institute for Advanced Systems Engineering (IASE)**, *Adjunct Faculty; Instructor of Record (Main Instructor)*, Developed and taught this all online course on formal methods to graduate-level engineers across three continents (North America, Europe, Asia) in industry from UTC through the UTC IASE. Formal methods tools used include nuXmv, NuSMV, Simulink Design Verifier, Simulink Verification and Validation, Frama-C, Daikon, and PVS. Guest lecturers provided by Prof. Sayan Mitra of Illinois, Dr. Eelco Scholte of UTC, and Jay Abraham of the MathWorks.
26 students, online-only course

University of Texas at Arlington

Fall 2015 **Automated Software Engineering (CSE6323)**, *Instructor*.
9 students; developed course

Summer 2015 **Introduction to Engineering and Engineering Mathematics (ENGR1.0x)**, *Guest Lecturer*, Created modules on computer science mathematics, particularly discrete math and graph theory.
Massive Open Online Course (MOOC) through edX via UTArlingtonX for high school students.

Spring 2015 **Mobile Systems Engineering (CSE4340 / CSE5349)**, *Instructor*.
32 students (18 undergraduates in 4340 and 14 graduates in 5349); redeveloped course

Fall 2014 **Computer Organization and Assembly Language Programming (CSE2312)**, *Instructor*.
49 students; also provided all course materials for another fall 2014 section, which has been reused in five subsequent sections in spring 2015, summer 2015, and fall 2015.

Spring 2014 **Special Topics in Advanced Systems and Architecture: Cyber-Physical Systems (CSE6359)**, *Instructor*.
9 students; developed course

Fall 2013 **Computer Organization and Assembly Language Programming (CSE2312)**, *Instructor*, Redeveloped course and also provided course materials for spring 2014 and summer 2014 sections.
47 students

University of Illinois at Urbana-Champaign

Spring 2010 **Introduction to Computing Systems (ECE190)**, *Graduate Teaching Assistant*.

Spring 2009 **Introduction to Computing Systems (ECE190)**, *Graduate Teaching Assistant*.

Fall 2008 **Introduction to Electrical and Computer Engineering (ECE110)**, *Graduate Teaching Assistant*.

Rice University

Spring 2008 **Applied Algorithms and Data Structures (COMP314)**, *Undergraduate Teaching Assistant*.

Spring 2008 **Intermediate Programming (COMP212)**, *Undergraduate Teaching Assistant*.

Fall 2007 **Digital Logic Design (ELEC326)**, *Undergraduate Lab Assistant*.

Spring 2007 **Intermediate Programming (COMP212)**, *Undergraduate Teaching Assistant*.

Spring 2007 **Microcontroller and Embedded Systems Laboratory (ELEC226)**, *Undergraduate Lab Assistant*.
Spring 2006 **Intermediate Programming (COMP212)**, *Undergraduate Teaching Assistant*.

PUBLICATIONS

Co-authors with a trailing † indicate thesis students formally advised or co-advised, with a trailing ° are postdocs formally mentored, and co-authors with a trailing ⋆ indicate students informally mentored (all at the time of publication). Papers subject to double-blind reviews (both authors and reviewers are anonymous) are indicated by DBR. Papers that have corresponding software artifacts and have passed a repeatability/artifact evaluation are indicated by RAE.

Citation metrics are from Google Scholar, with a total of 7111 citations, h-index of 42, and $i10$-index of 106 as of August 23, 2026.

REFEREED JOURNAL ARTICLES

[J33] Hanchen David Wang, Diego Manzanas Lopez†, Preston K. Robinette, Ipek Oguz, ***Taylor T. Johnson***, Meiyi Ma, "Towards Verified and Targeted Explanations through Formal Methods," *Journal of Artificial Intelligence Research*, Vol: 86, July 2026. [pdf]
DOI: 10.1613/jair.1.20924
Impact Factor: 4.0.

[J32] Muhammad Usama Zubair, ***Taylor T. Johnson***, Kanad Basu, Waseem Abbas, "ModelStar: Reachability Analysis-based Safety Verification of Neural Networks Against Model Perturbations," *Journal of Artificial Intelligence Research*, Vol: 85, April 2026. [pdf]
DOI: 10.1613/jair.1.18922
Impact Factor: 4.0.

[J31] Joel Rosenfeld°, Ben Russo, Rushi Kamalapurkar, ***Taylor T. Johnson***, "The Occupation Kernel Method for Nonlinear System Identification," *SIAM Journal on Control and Optimization*, Vol: 62 (3), p 1643-1668, 2024. [pdf]
DOI: 10.1137/19M127029X
Impact Factor: 2.2.

[J30] Diego Manzanas Lopez†, ***Taylor T. Johnson***, Stanley Bak, Hoang-Dung Tran, Kerianne L Hobbs, "Evaluation of Neural Network Verification Methods for Air-to-Air Collision Avoidance," *AIAA Journal of Air Transportation (JAT)*, Vol: 31, p 1-17, October 2023. [pdf]
DOI: 10.2514/1.D0255
Impact Factor: 1.2.

[J29] Luan Viet Nguyen, Hoang-Dung Tran†, ***Taylor T. Johnson***, Vijay Gupta, "Decentralized Safe Control for Distributed Cyber-Physical Systems using Real-time Reachability Analysis," *IEEE Transactions on Control of Network Systems (TCNS)*, Vol: 10, p 1234-1244, January 2023. [pdf]
DOI: 10.1109/TCNS.2023.3239562
Impact Factor: 4.0.

[J28] Christopher Brix, Mark Niklas Muller, Stanley Bak, ***Taylor T. Johnson***, Changliu Liu, "First Three Years of the International Verification of Neural Networks Competition (VNN-COMP)," *International Journal on Software Tools for Technology Transfer (STTT)*, January 2023. [pdf]
DOI: 10.1007/s10009-023-00703-4
Impact Factor: 1.1.

[J27] Joel A. Rosenfeld, Rushikesh Kamalapurkar, L. Forest Gruss, ***Taylor T. Johnson***, "Dynamic Mode Decomposition for Continuous Time Systems with the Liouville Operator," *Journal of Nonlinear Science*, October 2022.
DOI: 10.1007/s00332-021-09746-w
Impact Factor: 3.621.

[J26] Xiaodong Yang†, Omar Beg, Matthew Kenigsberg, ***Taylor T. Johnson***, "A Framework for Identification and Validation of Affine Hybrid Automata from Input-Output Traces," *ACM Transactions on Cyber-Physical Systems (TCPS)*, August 2022. [pdf]
DOI: 10.1145/3470455
Impact Factor: 2.6.

[J25] Hoang-Dung Tran, Luan Viet Nguyen, Patrick Musau†, Weiming Xiang, ***Taylor T. Johnson***, "Real-Time Verification for Distributed Cyber-Physical Systems," *Leibniz Transactions on Embedded Systems (LITES)*, February 2022.
DOI: 10.4230/LITES.8.2.7. Extension of [C23] invited for special issue on Distributed Hybrid Systems.

[J24] Hoang-Dung Tran†, Weiming Xiang, ***Taylor T. Johnson***, "Verification Approaches for Learning-Enabled Autonomous Cyber-Physical Systems," *IEEE Design and Test (D&T)*, Vol: 39, p 24-34, February 2022. [pdf]
DOI: 10.1109/MDAT.2020.3015712
Impact Factor: 2.409.

[J23] Hoang-Dung Tran†, Diego Manzanas Lopez†, Patrick Musau†, Xiaodong Yang†, Luan Nguyen, Weiming Xiang, ***Taylor T. Johnson***, "Verification of piecewise deep neural networks: a star set approach with zonotope pre-filter," *Formal Aspects of Computing*, Vol: 33, p 519-545, August 2021. [pdf]
DOI: 10.1007/s00165-021-00553-4
Impact Factor: 1.4. *Special Issue of Formal Aspects of Computing on Formal Methods: Foundations and Practical Applications*, October 2020. Extension of [C25] invited for special issue.

[J22] Weiming Xiang, Xiaodong Yang†, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Reachable Set Estimation for Neural Network Control Systems: A Simulation-Guided Approach," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, Vol: 32, p 1821-1830, May 2021. [pdf]
DOI: 10.1109/TNNLS.2020.2991090
Impact Factor: 8.793.

[J21] Omar Ali Beg, Luan Viet Nguyen, ***Taylor T. Johnson***, Ali Davoudi, "Cyber-Physical Anomaly Detection in Microgrids Using Time-Frequency Logic Formalism," *IEEE Access*, Vol: 9, p 20012-20021, January 2021.
DOI: 10.1109/ACCESS.2021.3055229
Impact Factor: 3.745.

[J20] Andrew Sogokon°, Paul B. Jackson, ***Taylor T. Johnson***, "Verifying Safety and Persistence in Hybrid Systems Using Flowpipes and Continuous Invariants," *Journal of Automated Reasoning (JAR), Springer*, Vol: 63, No: 4, p 1005-1029, December 2019. [pdf]
DOI: 10.1007/s10817-018-9497-x
Impact Factor: 1.445. Extension of [C19].

[J19] Hoang-Dung Tran†, Feiyang Cai, Diego Manzanas Lopez†, ***Taylor T. Johnson***, Xenofon Koutsoukos, "Safety Verification of Cyber-Physical Systems with Reinforcement Learning Control," *ACM Transactions on Embedded Computing Systems (TECS), Special Issue from EMSOFT'19*, Vol: 18, No: 5s, p 105:1-105:22, October 2019. [pdf]
DOI: 10.1145/3358230
Acceptance Rate: 25.0 percent (25 of 100)
Double-Blind Review (**DBR**)
Impact Factor: 2.609.

[J18] Weiming Xiang°, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Nonconservative Lifted Convex Conditions for Stability of Discrete-Time Switched Systems under Minimum Dwell-Time Constraint," *IEEE Transactions on Automatic Control (TAC)*, Vol: 64, No: 8, p 3407-3414, August 2019. [pdf]
DOI: 10.1109/TAC.2018.2879585
Impact Factor: 5.625.

[J17] Ziaur Rahman, Stephen P. Mattingly, Rahul Kawadgave, Dian Nostikasari, Nicole Roeglin, Colleen Casey, ***Taylor T. Johnson***, "Using crowd sourcing to locate and characterize conflicts for vulnerable modes," *Accident Analysis and Prevention*, Vol: 128, p 23-39, July 2019. [pdf]
DOI: 10.1016/j.aap.2019.03.014
Impact Factor: 3.655.

[J16] Omar Beg†, Luan Viet Nguyen†, ***Taylor T. Johnson***, Ali Davoudi, "Signal Temporal Logic-based Attack Detection in DC Microgrids," *IEEE Transactions on Smart Grid (TSG)*, Vol: 10, No: 4, p 3585-3595, July 2019. [pdf]
DOI: 10.1109/TSG.2018.2832544
Impact Factor: 8.267.

[J15] Stanley Bak, Omar Beg†, Sergiy Bogomolov, ***Taylor T. Johnson***, Luan Viet Nguyen†, Christian Schilling, "Hybrid automata: from verification to implementation," *International Journal on Software Tools for Technology Transfer (STTT), Springer*, Vol: 21 (1), p 87-104, February 2019. [pdf]
DOI: 10.1007/s10009-017-0458-1
Impact Factor: 1.079. Software tool: `http://swt.informatik.uni-freiburg.de/tool/spaceex/ha2slsf`

[J14] Luan Viet Nguyen†, Khaza Anuarul Hoque°, ***Taylor T. Johnson***, Stanley Bak, Steven Drager, "Cyber-Physical Specification Mismatches," *ACM Transactions on Cyber-Physical Systems (TCPS)*, Vol: 2,

No: 4, p 23:1-23:26, July 2018. [pdf]
DOI: 10.1145/3170500
Impact Factor: 2.6.

[J13] Weiming Xiang°, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Robust exponential stability and disturbance attenuation for discrete-time switched systems under arbitrary switching," *IEEE Transactions on Automatic Control (TAC)*, Vol: 63, No: 5, p 1450-1456, May 2018. [pdf]
DOI: 10.1109/TAC.2017.2748918
Impact Factor: 5.625.

[J12] Weiming Xiang°, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Output reachable set estimation and verification for multilayer neural networks," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, Vol: 29, No: 11, p 5777-5783, March 2018. [pdf]
DOI: 10.1109/TNNLS.2018.2808470
Impact Factor: 8.793.

[J11] Andrew Sogokon°, Khalil Ghorbal, ***Taylor T. Johnson***, "Operational Models for Piecewise-Smooth Systems," *ACM Transactions on Embedded Computing Systems (TECS), Special Issue from EMSOFT'17*, Vol: 16, No: 5s, p 185:1-185:19, October 2017.
DOI: 10.1145/3126506
Acceptance Rate: 25.6 percent (74 of 289)
Impact Factor: 2.609.

[J10] Weiming Xiang°, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Output Reachable Set Estimation for Switched Linear Systems and Its Application in Safety Verification," *IEEE Transactions on Automatic Control (TAC)*, Vol: 62, No: 10, p 5380-5387, October 2017. [pdf]
DOI: 10.1109/TAC.2017.2692100
Impact Factor: 5.625.

[J9] Omar Beg†, ***Taylor T. Johnson***, Ali Davoudi, "Detection of false-data injection attacks in cyber-physical DC microgrids," *IEEE Transactions on Industrial Informatics (TII)*, Vol: 13, No: 5, p 2693-2703, October 2017. [pdf]
DOI: 10.1109/TII.2017.2656905
Impact Factor: 9.112.

[J8] Omar Beg†, Houssam Abbas, ***Taylor T. Johnson***, Ali Davoudi, "Model Validation of PWM DC-DC Converters," *IEEE Transactions on Industrial Electronics (TIE)*, Vol: 64, No: 9, p 7049-7059, September 2017. [pdf]
DOI: 10.1109/TIE.2017.2688961
Impact Factor: 7.515.

[J7] Weiming Xiang°, ***Taylor T. Johnson***, "Event-triggered control for continuous-time switched linear systems," *IET Control Theory and Applications (CTA)*, Vol: 11, No: 11, p 1694-1703, July 2017. [pdf]
DOI: 10.1049/iet-cta.2016.0672
Impact Factor: 3.526.

[J6] Hoang-Dung Tran†, Luan Viet Nguyen†, Weiming Xiang°, ***Taylor T. Johnson***, "Order-reduction abstractions for safety verification of high-dimensional linear systems," *Discrete Event Dynamic Systems (DEDS), Springer*, Vol: 27, No: 2, p 443-461, April 2017. [pdf]
DOI: 10.1007/s10626-017-0244-y
Impact Factor: 1.088.

[J5] Sergiy Bogomolov, Alexandre Donzé, Goran Frehse, Radu Grosu, ***Taylor T. Johnson***, Hamed Ladan, Andreas Podelski, Martin Wehrle, "Guided Search for Hybrid Systems Based on Coarse-Grained Space Abstractions," *International Journal on Software Tools for Technology Transfer (STTT), Springer*, Vol: 18, No: 4, p 449-467, August 2016. [pdf]
DOI: 10.1007/s10009-015-0393-y
Impact Factor: 1.079. Software tool: `http://web.archive.org/web/20160210035001/http://www2.informatik.uni-freiburg.de:80/~bogom/sttt2015/`

[J4] ***Taylor T. Johnson***, Stanley Bak, Marco Caccamo, Lui Sha, "Real-time reachability for verified simplex design," *ACM Transactions on Embedded Computing Systems (TECS)*, Vol: 15, No: 2, p 26:1-26:27, February 2016. [pdf]
DOI: 10.1145/2723871
Impact Factor: 2.609. Extension of [C9]. Software Tool [S4]: `https://github.com/verivital/rtreach`

[J3] ***Taylor T. Johnson***, Sayan Mitra, "Safe and stabilizing distributed multi-path cellular flows," *Theoretical Computer Science (TCS), Elsevier*, Vol: 579, p 9-32, May 2015. [pdf]

DOI: 10.1016/j.tcs.2015.01.023
Impact Factor: 0.895. Extension of [C1]. Software Tool: `https://github.com/verivital/cell_flows`

[J2] Luan Viet Nguyen†, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Virtual Prototyping for Distributed Control of a Fault-Tolerant Modular Multilevel Inverter for Photovoltaics," *IEEE Transactions on Energy Conversion (TEC)*, Vol: 29, No: 4, p 841-850, December 2014. [pdf]
DOI: 10.1109/TEC.2014.2362716
Impact Factor: 4.501.

[J1] ***Taylor T. Johnson***, Sayan Mitra, "Safe Flocking in Spite of Actuator Faults using Directional Failure Detectors," *Journal of Nonlinear Systems and Applications, Watam Press*, Vol: 2, No: 1-2, p 73-95, 2011. [pdf]. Extension of [C2]

REFEREED HIGHLY-SELECTIVE CONFERENCE PROCEEDINGS PAPERS

Acceptance based on peer review of full papers.

[C76] Samuel Sasaki†, Ben Wooding°, ***Taylor T. Johnson***, "Learning Reach-Set Geometry for Tighter Probabilistic Neural Network Verification," *40th Annual Conference on Neural Information Processing Systems (NeurIPS'26) (to appear)*, December 2026. [link]
Double-Blind Review (**DBR**).

[C75] Hongchao Zhang°, Mohamad Kazma, Ben Wooding°, Meiyi Ma, ***Taylor T. Johnson***, Ahmad Taha, "Control Barrier Function Synthesis for Differential-Algebraic Systems," *65th IEEE Conference on Decision and Control (CDC'26), Honolulu, HI, USA*, December 2026. .

[C74] Mohamad Kazma, Hongchao Zhang°, Abdallah Alalem Albustami, Ben Wooding°, Meiyi Ma, ***Taylor T. Johnson***, Ahmad Taha, "Safe Control of Semi-Explicit Differential-Algebraic Systems: Control Barrier Functions with SOS Verification," *65th IEEE Conference on Decision and Control (CDC'26), Honolulu, HI, USA*, December 2026. .

[C73] Ben Wooding°, Mohamad Kazma, Hongchao Zhang°, Ahmad Taha, Meiyi Ma, ***Taylor T. Johnson***, "Safe Autonomous Takeover for Unknown Descriptor Systems," *65th IEEE Conference on Decision and Control (CDC'26), Honolulu, HI, USA*, December 2026. .

[C72] Anne Tumlin†, Samuel Sasaki†, Ben Wooding°, Diego Manzanas Lopez°, Muhammad Usama Zubair, Navid Hashemi, Hongchao Zhang°, Waseem Abbas, Ipek Oguz, Meiyi Ma, ***Taylor T. Johnson***, "NNV3: Expanding Neural Network Verification to New Architectures and Domains," *24th International Symposium on Automated Technology for Verification and Analysis (ATVA 2026), Hong Kong*, December 2026.
Acceptance Rate: 37.5 percent (18 of 48).

[C71] Jingyi Guo, Dung T. (Judy) Nguyen†, ***Taylor T. Johnson***, Kevin Leach, "Indelible Backdoors: On the Limits of Post-Training Defenses," *European Conference on Computer Vision (ECCV'26)*, September 2026. [pdf].

[C70] Samuel Sasaki†, Ben Wooding°, Hanchen David Wang, Anne Tumlin†, Meiyi Ma, ***Taylor T. Johnson***, "n2v: Neural Network Verification in Python (Competition Contribution)," *3rd International Symposium on AI Verification (SAIV 2026)*, July 2026. [pdf].

[C69] Quang Pham, Ben Wooding°, Luke Nam†, Samuel Sasaki†, ***Taylor T. Johnson***, "MetaMoE: Formal Verification of Compositional Robustness and Scalability of Mixture-of-Experts Architecture," *3rd International Symposium on AI Verification (SAIV 2026)*, p 167-190, July 2026. [pdf]
DOI: 10.1007/978-3-032-32357-6_8.

[C68] Ben Wooding°, Kiersten Brennan⋆, Anne Tumlin†, Hongchao Zhang°, ***Taylor T. Johnson***, "A Self-correcting Neuro-symbolic AI Reasoning Framework," *3rd International Symposium on AI Verification (SAIV 2026)*, p 191-211, July 2026. [pdf]
DOI: 10.1007/978-3-032-32357-6_9.

[C67] Anne Tumlin†, Ben Wooding°, Zhenxuan Shao⋆, Diego Manzanas Lopez°, Tyler Derr, ***Taylor T. Johnson***, "Reachability-Based Formal Verification of Graph Neural Networks with Node and Edge Features," *3rd International Symposium on AI Verification (SAIV 2026)*, p 271-298, July 2026. [pdf]
DOI: 10.1007/978-3-032-32357-6_13.

[C66] Yilin Liu, Hongchao Zhang°, Ahmad Taha, ***Taylor T. Johnson***, Meiyi Ma, "Modeling Spectral Energy Shifts in Spatio-Temporal Graph Anomaly Detection," *43rd International Conference on Machine Learning (ICML'26)*, July 2026. [pdf].

[C65] Nicholas Potteiger, Ankita Samaddar, ***Taylor T. Johnson***, Xenofon D. Koutsoukos, "Reward Shaping and Action Masking for Compositional Tasks using Behavior Trees and LLMs," *3rd International Conference on Neuro-symbolic Systems (NeuS'26)*, 2026. [pdf].

[C64] Ben Wooding°, Hongchao Zhang°, ***Taylor T. Johnson***, Abolfazl Lavaei, "k-Inductive Neural Barrier Certificates for Unknown Nonlinear Dynamics," *3rd International Conference on Neuro-symbolic Systems (NeuS'26)*, 2026. [pdf].

[C63] Ziyan An, Xia Wang, Hendrik Baier, Zirong Chen, Abhishek Dubey, Ayan Mukhopadhyay, ***Taylor T. Johnson***, Jonathan Sprinkle, Meiyi Ma, "LogiEx: Integrating Formal Logic and LLMs for Explainable Transit Planning," *17th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS'26)*, May 2026.
Double-Blind Review (**DBR**).

[C62] Dung T. (Judy) Nguyen†, Ziyan An, ***Taylor T. Johnson***, Meiyi Ma, Kevin Leach, "LOGSAFE: Logic-Guided Verification for Trustworthy Federated Time-Series Learning," *17th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS'26)*, May 2026. [pdf]
Double-Blind Review (**DBR**).

[C61] Preston Robinette†, Andrew Hard, Swaroop Ramaswamy, Ehsan Amid, Rajiv Mathews, ***Taylor T. Johnson***, "We Are What We Repeatedly Do: Improving Long Context Instruction Following," *Findings of the 23rd Conference of the European Chapter of the Association for Computational Linguistics (EACL'26)*, April 2026.
Double-Blind Review (**DBR**).

[C60] Dung T. (Judy) Nguyen†, Quang Nguyen, Preston Robinette†, Eli Jiang, ***Taylor T. Johnson***, Kevin Leach, "SUGAR: A Sweeter Spot for Generative Unlearning of Many Identities," *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV'26)*, March 2026. [pdf]
Double-Blind Review (**DBR**).

[C59] Navid Hashemi, Samuel Sasaki†, Ipek Oguz, Meiyi Ma, ***Taylor T. Johnson***, "Scaling Data-Driven Probabilistic Robustness Analysis for Semantic Segmentation Neural Networks," *39th Annual Conference on Neural Information Processing Systems (NeurIPS'25)*, December 2025. [pdf]
Double-Blind Review (**DBR**).

[C58] Preston Robinette†, Dung T. (Judy) Nguyen†, Samuel Sasaki†, ***Taylor T. Johnson***, "Trigger-Based Fragile Model Watermarking for Image Transformation Networks," *30th European Symposium on Research in Computer Security (ESORICS'25)*, p 346-365, September 2025. [pdf]
DOI: 10.1007/978-3-032-07884-1_18
Acceptance Rate: 16.0 percent (86 of 535)
Double-Blind Review (**DBR**).

[C57] Dung T. (Judy) Nguyen†, ***Taylor T. Johnson***, Kevin Leach, "PARDON: Privacy-Aware and Robust Federated Domain Generalization," *45th IEEE International Conference on Distributed Computing Systems (ICDCS'25)*, p 703-713, July 2025. [pdf]
DOI: 10.1109/icdcs63083.2025.00074
Acceptance Rate: 19.6 percent (104 of 529)
Double-Blind Review (**DBR**).

[C56] Nicholas Potteiger, Diego Manzanas Lopez°, ***Taylor T. Johnson***, Xenofon Koutsoukos, "Real-Time Reachability for Neurosymbolic Reinforcement Learning based Safe Autonomous Navigation," *2nd International Conference on Neuro-symbolic Systems (NeuS'25)*, May 2025. [pdf]
Acceptance Rate: 43.4 percent (40 of 92).

[C55] Samuel Sasaki†, Diego Manzanas Lopez°, ***Taylor T. Johnson***, "Neurosymbolic Finite and Pushdown Automata: Improved Multimodal Reasoning versus Vision Language Models (VLMs)," *2nd International Conference on Neuro-symbolic Systems (NeuS'25)*, May 2025. [pdf]
Acceptance Rate: 43.4 percent (40 of 92).

[C54] Serena Serbinowska†, Diego Manzanas Lopez°, Dung T. (Judy) Nguyen†, ***Taylor T. Johnson***, "Neuro-Symbolic Behavior Trees and Their Verification," *2nd International Conference on Neuro-symbolic Systems (NeuS'25)*, May 2025. [pdf]
Acceptance Rate: 43.4 percent (40 of 92).

[C53] Tianshu Bao°, Xiaoou Liu, Meiyi Ma, ***Taylor T. Johnson***, Hua Wei, "Uncertainty Quantification for Physics-Informed Traffic Graph Networks," *16th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS'25)*, p 1-10, May 2025. [pdf]
DOI: 10.1145/3716550.3722023
Acceptance Rate: 28.4 percent (29 of 102)
Double-Blind Review (**DBR**). **Best Artifact/Repeatability Evaluation Award**

[C52] Samuel Sasaki†, Preston Robinette†, Diego Manzanas Lopez°, ***Taylor T. Johnson***, "Robustness Verification of Video Classification Neural Networks," *13th International Conference on Formal Methods in Software Engineering (FormaliSE'25)*, p 22-33, May 2025. [pdf]

DOI: 10.1109/FormaliSE66629.2025.00009
Acceptance Rate: 31.2 percent (15 of 48)
Double-Blind Review (**DBR**).

[C51] Lucas Cordeiro, Matthew Daggitt, Julien Girard-Satabin, Omri Isac, ***Taylor T. Johnson***, Guy Katz, Ekaterina Komendantskaya, Augustin Lemesle, Edoardo Manino, Artjoms Sinkarovs, Haoze Wu, "Neural Network Verification is a Programming Language Challenge (Fresh Perspectives)," *34th European Symposium on Programming (ESOP'25)*, p 206-235, May 2025. [pdf]
DOI: 10.1007/978-3-031-91118-7_9
Acceptance Rate: 34.0 percent (30 of 88)
Double-Blind Review (**DBR**).

[C50] Dung T. (Judy) Nguyen†, Ngoc N. Tran, ***Taylor T. Johnson***, Kevin Leach, "PBP: Post-training Backdoor Purification for Malware Classifiers," *32nd Network and Distributed System Security Symposium (NDSS'25)*, February 2025. [pdf]
DOI: 10.14722/ndss.2025.240603
Acceptance Rate: 16.0 percent (211 of 1311)
Double-Blind Review (**DBR**).

[C49] Anne Tumlin†, Diego Manzanas Lopez°, Preston Robinette†, Yuying Zhao, Tyler Derr, ***Taylor T. Johnson***, "FairNNV: The Neural Network Verification Tool For Certifying Fairness," *5th ACM International Conference on AI in Finance (ICAIF'24)*, p 36-44, November 2024. [pdf]
DOI: 10.1145/3677052.3698677
Acceptance Rate: 39.2 percent (99 of 252)
Double-Blind Review (**DBR**). Selected for oral presentation (about half of all accepted papers).

[C48] Preston Robinette†, Daniel Moyer, ***Taylor T. Johnson***, "Sanitizing Hidden Information with Diffusion Models," *27th European Conference on Artificial Intelligence (ECAI'24)*, October 2024. [pdf]
DOI: 10.3233/FAIA240562
Acceptance Rate: 23.3 percent (547 of 2344)
Double-Blind Review (**DBR**).

[C47] Tianshu Bao†, Hua Wei, Junyi Ji, Daniel Work, ***Taylor T. Johnson***, "Spatial-Temporal PDE Networks for Traffic Flow Forecasting," *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD'24), Applied Data Science Track*, p 166-182, September 2024. [pdf]
DOI: 10.1007/978-3-031-70381-2_11
Acceptance Rate: 25.0 percent (56 of 224)
Double-Blind Review (**DBR**).

[C46] Tianshu Bao†, ***Taylor T. Johnson***, Xiaowei Jia, "Transfer Learning Using Inaccurate Physics Rule for Streamflow Prediction," *33rd International Joint Conference on Artificial Intelligence (IJCAI'24), AI for Good Track*, p 7170-7178, August 2024. [pdf]
DOI: 10.24963/ijcai.2024/793
Double-Blind Review (**DBR**).

[C45] Preston Robinette†, Diego Manzanas Lopez†, Serena Serbinowska†, Kevin Leach, ***Taylor T. Johnson***, "Case Study: Neural Network Malware Detection Verification for Feature and Image Datasets," *12th International Conference on Formal Methods in Software Engineering (FormaliSE'24)*, p 127-137, April 2024. [pdf]
DOI: 10.1145/3644033.3644372
Acceptance Rate: 34.1 percent (14 of 41)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C44] Ziyan An, ***Taylor T. Johnson***, Meiyi Ma, "Formal Logic Enabled Personalized Federated Learning Through Property Inference," *38th AAAI Conference on Artificial Intelligence (AAAI'24)*, Vol: 38, p 10882-10890, February 2024. [pdf]
DOI: 10.1609/aaai.v38i10.28962
Acceptance Rate: 23.7 percent (2342 of 9862)
Double-Blind Review (**DBR**).

[C43] Ziyan An, Xia Wang, ***Taylor T. Johnson***, Jonathan Sprinkle, Meiyi Ma, "Runtime Monitoring of Accidents in Driving Recordings with Multi-Type Logic in Empirical Models," *23rd International Conference on Runtime Verification (RV'23)*, p 376-388, October 2023. [pdf]
DOI: 10.1007/978-3-031-44267-4_21
Acceptance Rate: 51.2 percent (20 of 39).

[C42] Preston Robinette†, ***Taylor T. Johnson***, David Wang, Nishan Shehadeh, Daniel C Moyer, "SUDS: Sanitizing Universal and Dependent Steganography," *26th European Conference on Artificial Intelligence (ECAI'23)*, October 2023. [pdf]
DOI: 10.3233/FAIA230489
Acceptance Rate: 20.5 percent (390 of 1896)
Double-Blind Review (**DBR**).

[C41] Neelanjana Pal†, Diego Manzanas Lopez†, ***Taylor T. Johnson***, "Robustness verification of deep neural networks using star-based reachability analysis with variable-length time series input," *ERCIM Working Group 28th International Conference on Formal Methods for Industrial Critical Systems (FMICS'23)*, p 170-188, September 2023. [pdf]
DOI: 10.1007/978-3-031-43681-9_10
Acceptance Rate: 58.3 percent (14 of 24).

[C40] Diego Manzanas Lopez†, Sung Woo Choi, Hoang-Dung Tran, ***Taylor T. Johnson***, "NNV 2.0: The Neural Network Verification Tool," *35th International Conference on Computer Aided Verification (CAV'23)*, July 2023. [pdf]
DOI: 10.1007/978-3-031-37703-7_19
Acceptance Rate: 25.6 percent (67 of 261)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C39] Nathaniel Hamilton†, Kyle Dunlap, ***Taylor T. Johnson***, Kerianne L. Hobbs, "Ablation Study of How Run Time Assurance Impacts the Training and Performance of Reinforcement Learning Agents," *IEEE 9th International Conference on Space Mission Challenges for Information Technology (SMC-IT'23)*, July 2023. [pdf]
DOI: 10.1109/smc-it56444.2023.00014. **Distinguished Paper Award.**

[C38] Preston K. Robinette†, Nathaniel Hamilton, ***Taylor T. Johnson***, "Self-Preserving Genetic Algorithms for Safe Learning in Discrete Action Spaces," *14th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS'23)*, May 2023. [pdf]
DOI: 10.1145/3576841.3585936
Acceptance Rate: 25.6 percent (21 of 82)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C37] Nathaniel Hamilton†, Preston Robinette†, ***Taylor T. Johnson***, "Training Agents to Satisfy Timed and Untimed Signal Temporal Logic Specifications with Reinforcement Learning," *20th International Conference on Software Engineering and Formal Methods (SEFM'22)*, p 190-206, September 2022. [pdf]
DOI: 10.1007/978-3-031-17108-6_12
Acceptance Rate: 32.3 percent (22 of 68).

[C36] Serena Serbinowska†, ***Taylor T. Johnson***, "BehaVerify: Verifying Temporal Logic Specifications for Behavior Trees," *20th International Conference on Software Engineering and Formal Methods (SEFM'22)*, p 307-323, September 2022. [pdf]
DOI: 10.1007/978-3-031-17108-6_19
Acceptance Rate: 32.3 percent (22 of 68).

[C35] Diego Manzanas Lopez†, Patrick Musau, Nathaniel Hamilton, ***Taylor T. Johnson***, "Reachability Analysis of a General Class of Neural Ordinary Differential Equations," *20th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'22)*, p 258-277, September 2022. [pdf]
DOI: 10.1007/978-3-031-15839-1_15
Acceptance Rate: 43.7 percent (14 of 32)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C34] Xiaodong Yang†, Tom Yamaguchi, Hoang-Dung Tran, ***Taylor T. Johnson***, Danil Prokhorov, "Neural Network Repair with Reachability Analysis," *20th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'22)*, p 221-236, September 2022. [pdf]
DOI: 10.1007/978-3-031-15839-1_13
Acceptance Rate: 43.7 percent (14 of 32)
Repeatability/Artifact Evaluation Passed (**RAE**). **Best Artifact/Repeatability Evaluation Award**

[C33] Tianshu Bao†, Shengyu Chen, ***Taylor T. Johnson***, Peyman Givi, Shervin Sammak, Xiaowei Jia, "Physics Guided Neural Networks for Spatio-temporal Super-resolution of Turbulent Flows," *38th Conference on Uncertainty in Artificial Intelligence (UAI'22)*, Vol: 180, p 118-128, August 2022. [pdf]

Acceptance Rate: 32.3 percent (230 of 712)
Double-Blind Review (**DBR**).

[C32] Tianshu Bao†, Xiaowei Jia, Jacob Zwart, Jeffrey Sadler, Alison Appling, Samantha Oliver, ***Taylor T. Johnson***, "Partial Differential Equation Driven Dynamic Graph Networks for Predicting Stream Water Temperature," *21st IEEE International Conference on Data Mining (ICDM'21)*, p 11-20, December 2021. [pdf]
DOI: 10.1109/ICDM51629.2021.00011
Acceptance Rate: 20.0 percent (198 of 990).

[C31] Hoang-Dung Tran†, Neelanjana Pal†, Patrick Musau†, Xiaodong Yang†, Nathaniel Hamilton†, Diego Manzanas Lopez†, Stanley Bak, ***Taylor T. Johnson***, "Robustness Verification of Semantic Segmentation Neural Networks Using Relaxed Reachability," *33rd International Conference on Computer-Aided Verification (CAV'21)*, Vol: 12759, p 263-283, July 2021. [pdf]
DOI: 10.1007/978-3-030-81685-8_12
Acceptance Rate: 27.2 percent (79 of 290)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**). Reproducible artifact (functional, available, reusable badges): `https://zenodo.org/record/4726346`)

[C30] Xiaodong Yang†, Tomoya Yamaguchi, Hoang-Dung Tran, Bardh Hoxha, ***Taylor T. Johnson***, Danil Prokhorov, "Reachability Analysis of Deep ReLU Neural Networks using Facet-Vertex Incidence," *24th ACM International Conference on Hybrid Systems (HSCC'21)*, p 18:1-7, May 2021. [pdf]
DOI: 10.1145/3447928.3456650
Acceptance Rate: 35.0 percent (27 of 77)
Double-Blind Review (**DBR**).

[C29] Hoang-Dung Tran†, Stanley Bak, Weiming Xiang, ***Taylor T. Johnson***, "Verification of Deep Convolutional Neural Networks Using ImageStars," *32nd International Conference on Computer-Aided Verification (CAV'20)*, Vol: 12224, p 18-42, July 2020. [pdf]
DOI: 10.1007/978-3-030-53288-8_2
Acceptance Rate: 27.3 percent (66 of 241)
Double-Blind Review (**DBR**). Reproducible CodeOcean capsule: `https://doi.org/10.24433/CO.3351375.v1`)

[C28] Stanley Bak, Hoang-Dung Tran†, Kerianne Hobbs, ***Taylor T. Johnson***, "Improved Geometric Path Enumeration for Verifying ReLU Neural Networks," *32nd International Conference on Computer-Aided Verification (CAV'20)*, Vol: 12224, p 66-96, July 2020. [pdf]
DOI: 10.1007/978-3-030-53288-8_4
Acceptance Rate: 27.3 percent (66 of 241)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C27] Hoang-Dung Tran†, Xiaodong Yang†, Diego Manzanas Lopez†, Patrick Musau†, Luan Viet Nguyen, Weiming Xiang, Stanley Bak, ***Taylor T. Johnson***, "NNV: The Neural Network Verification Tool for Deep Neural Networks and Learning-Enabled Cyber-Physical Systems," *32nd International Conference on Computer-Aided Verification (CAV'20)*, Vol: 12224, p 3-17, July 2020. [pdf]
DOI: 10.1007/978-3-030-53288-8_1
Acceptance Rate: 27.3 percent (66 of 241)
Repeatability/Artifact Evaluation Passed (**RAE**). Reproducible CodeOcean capsule: `https://doi.org/10.24433/CO.0221760.v1`

[C26] Shafiul Azam Chowdhury, Sohil Lal Shrestha, ***Taylor T. Johnson***, Christoph Csallner, "SLEMI: Equivalence Modulo Input (EMI) Based Mutation of CPS Models for Finding Compiler Bugs in Simulink," *42nd International Conference on Software Engineering (ICSE'20)*, p 335-346, June 2020. [pdf]
DOI: 10.1145/3377811.3380381
Acceptance Rate: 20.9 percent (129 of 617)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C25] Hoang-Dung Tran†, Patrick Musau†, Diego Manzanas Lopez†, Xiaodong Yang†, Luan Viet Nguyen, Weiming Xiang°, ***Taylor T. Johnson***, "Star-Based Reachability Analysis of Deep Neural Networks," *23rd International Symposium on Formal Methods (FM'19)*, Vol: 11800, p 670-686, September 2019. [pdf]

DOI: 10.1007/978-3-030-30942-8_39
Acceptance Rate: 34.1 percent (44 of 129).

[C24] Hoang-Dung Tran†, Luan Viet Nguyen, Nathaniel Hamilton†, Weiming Xiang°, ***Taylor T. Johnson***, "Reachability Analysis for High-Index Linear Differential Algebraic Equations," *17th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'19)*, Vol: 11750, p 160-177, August 2019. [pdf]
DOI: 10.1007/978-3-030-29662-9_10
Acceptance Rate: 40.4 percent (17 of 42).

[C23] Hoang-Dung Tran†, Luan Viet Nguyen, Patrick Musau†, Weiming Xiang°, ***Taylor T. Johnson***, "Decentralized Real-Time Safety Verification for Distributed Cyber-Physical Systems," *39th International Conference on Formal Techniques for Distributed Objects (FORTE'19)*, Vol: 11535, p 261-277, June 2019. [pdf]
DOI: 10.1007/978-3-030-21759-4_15
Acceptance Rate: 42.8 percent (18 of 42).

[C22] Stanley Bak, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Numerical verification of affine systems with up to a billion dimensions," *22nd ACM International Conference on Hybrid Systems (HSCC'19)*, p 23-32, April 2019. [pdf]
DOI: 10.1145/3302504.3311792
Acceptance Rate: 23.5 percent (21 of 89)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C21] Shafiul Chowdhury†, Soumik Mohian, Sidharth Mehra, Siddhant Gawsane, ***Taylor T. Johnson***, Christoph Csallner, "Automatically Finding Bugs in a Commercial Cyber-Physical System Development Tool Chain With SLforge," *40th International Conference on Software Engineering (ICSE'18)*, p 981-992, May 2018. [pdf]
DOI: 10.1145/3180155.3180231
Acceptance Rate: 20.9 percent (105 of 502)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**). Related software tools SLForge and CyFuzz [S6]

[C20] Luan Viet Nguyen†, James Kapinski, Xiaoqing Jin, Jyotirmoy Deshmukh, ***Taylor T. Johnson***, "Hyper-properties of real-valued signals," *15th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE'17)*, p 104-113, September 2017. [pdf]
DOI: 10.1145/3127041.3127058
Acceptance Rate: 31.2 percent (15 of 48).

[C19] Andrew Sogokon°, Paul Jackson, ***Taylor T. Johnson***, "Verifying safety and persistence properties of hybrid systems using flowpipes and continuous invariants," *9th NASA Formal Methods Symposium (NFM'17)*, Vol: 10227, p 194-211, May 2017. [pdf]
DOI: 10.1007/978-3-319-57288-8_14
Acceptance Rate: 38.3 percent (23 of 60).

[C18] Luan Viet Nguyen†, James Kapinski, Xiaoqing Jin, Jyotirmoy Deshmukh, Ken Butts, ***Taylor T. Johnson***, "Abnormal data classification using time-frequency temporal logic," *20th International Conference on Hybrid Systems: Computation and Control (HSCC'17)*, p 237-242, April 2017. [pdf]
DOI: 10.1145/3049797.3049809
Acceptance Rate: 38.1 percent (29 of 76)
Double-Blind Review (**DBR**)
Repeatability/Artifact Evaluation Passed (**RAE**).

[C17] Umair Siddique, Khaza Anuarul Hoque°, ***Taylor T. Johnson***, "Formal Specification and Dependability Analysis of Optical Communication Networks," *Design, Automation, and Test in Europe (DATE'17)*, p 1564-1569, March 2017.
DOI: 10.23919/DATE.2017.7927239
Acceptance Rate: 24.3 percent (193 of 794).

[C16] Andrew Sogokon°, Khalil Ghorbal, ***Taylor T. Johnson***, "Decoupling Abstractions of Non-linear Ordinary Differential Equations," *International Symposium on Formal Methods (FM'16)*, Vol: 9995, p 628-644, November 2016. [pdf]
DOI: 10.1007/978-3-319-48989-6_38
Acceptance Rate: 28.4 percent (43 of 151).

[C15] Muhammad Usama Sardar, Nida Afaq, Khaza Anuarul Hoque°, ***Taylor T. Johnson***, Osman Hasan, "Probabilistic formal verification of the SATS concept of operation," *8th NASA Formal Methods*

Symposium (NFM'16), Vol: 9690, p 191-205, June 2016. [pdf]
DOI: 10.1007/978-3-319-40648-0_15
Acceptance Rate: 37.2 percent (19 of 51).

[C14] Stanley Bak, Sergiy Bogomolov, Thomas A. Henzinger, ***Taylor T. Johnson***, Pradyot Prakash, "Scalable Static Hybridization Methods for Analysis of Nonlinear Systems," *19th ACM International Conference on Hybrid Systems: Computation and Control (HSCC'16)*, p 155-164, April 2016. [pdf]
DOI: 10.1145/2883817.2883837
Acceptance Rate: 43.0 percent (28 of 65)
Repeatability/Artifact Evaluation Passed (**RAE**). **Best Software Repeatability Evaluation Award**

[C13] Stanley Bak, ***Taylor T. Johnson***, "Periodically-Scheduled Controller Analysis using Hybrid Systems Reachability and Continuization," *36th IEEE Real-Time Systems Symposium (RTSS'15)*, p 195-205, December 2015. [pdf]
DOI: 10.1109/RTSS.2015.26
Acceptance Rate: 22.5 percent (34 of 151).

[C12] Luan Viet Nguyen[†], Christian Schilling, Sergiy Bogomolov, ***Taylor T. Johnson***, "Runtime Verification for Hybrid Analysis Tools," *15th International Conference on Runtime Verification (RV'15)*, Vol: 9333, p 281-286, November 2015. [pdf]
DOI: 10.1007/978-3-319-23820-3_19
Acceptance Rate: 46.6 percent (21 of 45).

[C11] ***Taylor T. Johnson***, Stanley Bak, Steven Drager, "Cyber-Physical Specification Mismatch Identification with Dynamic Analysis," *ACM/IEEE 6th International Conference on Cyber-Physical Systems (ICCPS'15)*, p 208-217, April 2015. [pdf]
DOI: 10.1145/2735960.2735979
Acceptance Rate: 27.4 percent (25 of 91). Software Tool [S3]: `http://verivital.com/hynger/`

[C10] Stanley Bak, Sergiy Bogomolov, ***Taylor T. Johnson***, "HyST: A Source Transformation and Translation Tool for Hybrid Automaton Models," *18th International Conference on Hybrid Systems: Computation and Control (HSCC'15)*, p 128-133, April 2015. [pdf]
DOI: 10.1145/2728606.2728630
Acceptance Rate: 39.4 percent (30 of 76)
Repeatability/Artifact Evaluation Passed (**RAE**). Software Tool [S5]: `http://verivital.com/hyst/`

[C9] Stanley Bak, ***Taylor T. Johnson***, Marco Caccamo, Lui Sha, "Real-Time Reachability for Verified Simplex Design," *35th IEEE Real-Time Systems Symposium (RTSS'14)*, p 138-148, December 2014. [pdf]
DOI: 10.1109/RTSS.2014.21
Acceptance Rate: 21.4 percent (33 of 154). Software Tool [S4]: `https://github.com/verivital/rtreach`

[C8] ***Taylor T. Johnson***, Sayan Mitra, "Anonymized Reachability of Hybrid Automata Networks," *12th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'14)*, Vol: 8711, p 130-145, September 2014. [pdf]
DOI: 10.1007/978-3-319-10512-3_10
Acceptance Rate: 47.2 percent (17 of 36).

[C7] Sergiy Bogomolov, Alexandre Donzé, Goran Frehse, Radu Grosu, ***Taylor T. Johnson***, Hamed Ladan, Andreas Podelski, Martin Wehrle, "Abstraction-based guided search for hybrid systems," *20th International SPIN Symposium on Model Checking of Software (SPIN'13)*, p 117-134, 2013. [pdf]
DOI: 10.1007/978-3-642-39176-7_8
Acceptance Rate: 50.0 percent (20 of 40).

[C6] Parasara Sridhar Duggirala, ***Taylor T. Johnson***, Adam Zimmerman, Sayan Mitra, "Static and dynamic analysis of timed distributed traces," *33rd IEEE Real-Time Systems Symposium (RTSS'12)*, p 173-182, December 2012. [pdf]
DOI: 10.1109/RTSS.2012.69
Acceptance Rate: 22.2 percent (35 of 157).

[C5] ***Taylor T. Johnson***, Jeremy Green, Sayan Mitra, Rachel Dudley, R. Scott Erwin, "Satellite rendezvous and conjunction avoidance: Case studies in verification of nonlinear hybrid systems," *International Symposium on Formal Methods (FM'12)*, Vol: 7436, p 252-266, August 2012. [pdf]
DOI: 10.1007/978-3-642-32759-9_22
Acceptance Rate: 21.2 percent (28 of 132).

[C4] ***Taylor T. Johnson***, Sayan Mitra, "A small model theorem for rectangular hybrid automata networks," *IFIP International Conference on Formal Techniques for Distributed Systems: Joint International*

Conference of 14th Formal Methods for Open Object-Based Distributed Systems and 32nd Formal Techniques for Networked and Distributed Systems (FORTE/FMOODS'12), Vol: 7273, p 18-34, June 2012. [pdf]
DOI: 10.1007/978-3-642-30793-5_2
Acceptance Rate: 38.0 percent (16 of 42). **Best Paper Award**. Top 1 of 155 Submissions Across Three Conferences

[C3] ***Taylor T. Johnson***, Sayan Mitra, "Parameterized verification of distributed cyber-physical systems: An aircraft landing protocol case study," *3rd ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS'12)*, p 161-170, April 2012. [pdf]
DOI: 10.1109/ICCPS.2012.24
Acceptance Rate: 34.1 percent (14 of 41).

[C2] ***Taylor T. Johnson***, Sayan Mitra, "Safe flocking in spite of actuator faults," *Stabilization, Safety, and Security of Distributed Systems (SSS'10)*, Vol: 6366, p 588-602, September 2010. [pdf]
DOI: 10.1007/978-3-642-16023-3_45
Acceptance Rate: 43.3 percent (39 of 90).

[C1] ***Taylor T. Johnson***, Sayan Mitra, Karthik Manamcheri, "Safe and stabilizing distributed cellular flows," *30th IEEE International Distributed Computing Systems (ICDCS'10)*, p 577-586, June 2010. [pdf]
DOI: 10.1109/ICDCS.2010.49
Acceptance Rate: 14.3 percent (84 of 585).

BOOK CHAPTERS

Acceptance based on peer review of full papers.

[BC4] Abhishek Dubey, ***Taylor T. Johnson***, Xenofon Koutsoukos, Baiting Luo, Diego Manzanas Lopez, Miklos Maroti, Ayan Mukhopadhyay, Nicholas Potteiger, Serena Serbinowska, Daniel Stojcsics, Yunuo Zhang, Gabor Karsai, "Toward Assured Autonomy Using Neurosymbolic Components and Systems," *Neurosymbolic AI (Wiley book, edited by G. Karsai et al.), Chapter 4*, p 89-118, 2026.
DOI: 10.1002/9781394302406.ch04. Editors: Alvaro Velasquez, Shankar Sastry, Pradeep Ravikumar, Houbing Song, Sandeep Neema

[BC3] ***Taylor T. Johnson***, Barbara Steffen, "Let's Talk AI with Computer Science Expert ***Taylor T. Johnson***," *Let's Talk AI, Lecture Notes in Computer Science (LNCS)*, Vol: 15000, p 130-137, October 2026.
DOI: 10.1007/978-3-032-09008-9_15. Editors: Barbara Steffen, Edward A. Lee, Bernhard Steffen

[BC2] Xiaodong Yang, Tomoya Yamaguchi, Bardh Hoxha, Danil Prokhorov, ***Taylor T. Johnson***, "Metacognition with Neural Network Verification and Repair using Veritex," *Metacognitive Artificial Intelligence*, p 212-228, February 2025.
DOI: 10.1017/9781009522472.019.

[BC1] Weiming Xiang°, Diego Manzanas Lopez†, Patrick Musau†, ***Taylor T. Johnson***, "Reachable Set Estimation and Verification for Neural Network Models of Nonlinear Dynamic Systems," *Safe, Autonomous and Intelligent Vehicles, Series on Unmanned Systems Technologies, Springer*, p 123-144, 2019. [pdf]
DOI: 10.1007/978-3-319-97301-2_7. Editors: Huafeng Yu, Xin Li, Richard Murray, Claire J. Tomlin, Ramesh S

OTHER FULLY REFEREED CONFERENCE PROCEEDINGS PAPERS

Acceptance based on peer review of full papers.

[OC22] Xia Wang, Anda Liang, Jonathan Sprinkle, ***Taylor T. Johnson***, "Robustness Verification for Knowledge-Based Logic of Risky Driving Scenes," *Future of Information and Communication Conference (FICC 2025)*, p 572-585, 2025.
DOI: 10.1007/978-3-031-84460-7_36.

[OC21] Muhammad Usama Zubair, Kanad Basu, Waseem Abbas, ***Taylor T. Johnson***, "Verification of Neural Network Robustness Against Weight Perturbations Using Star Sets," *IEEE Conference on Artificial Intelligence (CAI 2025)*, p 637-642, 2025.
DOI: 10.1109/CAI64502.2025.00117.

[OC20] Ziyan An, Xia Wang, Hendrik Baier, Zirong Chen, Abhishek Dubey, Jonathan Sprinkle, Ayan Mukhopadhyay, Meiyi Ma, ***Taylor T. Johnson***, "Combining LLMs with a Logic-Based Framework to Explain MCTS," *24th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2025)*, p 2405-2407, 2025.
DOI: 10.65109/jwwj9232.

[OC19] Ziyan An, Daniel Moyer, Ipek Oguz, Meiyi Ma, ***Taylor T. Johnson***, "ISL: Monitoring Image Segmentation Logic in Medical Imaging Analysis," *25th International Conference on Runtime Verification (RV 2025)*, p 477-496, 2025. [pdf]
DOI: 10.1007/978-3-032-05435-7_26.

[OC18] Alessandro Abate, Matthias Althoff, Lei Bu, Gidon Ernst, Goran Frehse, Luca Geretti, ***Taylor T. Johnson***, Claudio Menghi, Stefan Mitsch, Stefan Schupp, Sadegh Soudjani, "The ARCH-COMP Friendly Verification Competition for Continuous and Hybrid Systems," *TOOLympics Challenge 2023 and TOOLympics 2024*, Vol: 14550, p 1-37, October 2024. [pdf]
DOI: 10.1007/978-3-031-67695-6_1.

[OC17] Neelanjana Pal, Seojin Lee, Taylor T. Johnson, "Benchmark: formal verification of semantic segmentation neural networks," *1st International Conference on Bridging the Gap between AI and Reality (AISoLA'23)*, p 311-330, October 2023. [pdf]
DOI: 10.1007/978-3-031-46002-9_20.

[OC16] Preston K. Robinette, Diego Manzanas Lopez, Taylor T. Johnson, "Benchmark: neural network malware classification," *1st International Conference on Bridging the Gap between AI and Reality (AISoLA'23)*, p 291-298, October 2023. [pdf]
DOI: 10.1007/978-3-031-46002-9_17.

[OC15] Diego Manzanas Lopez, Taylor T. Johnson, "Empirical analysis of benchmark generation for the verification of neural network image classifiers," *1st International Conference on Bridging the Gap between AI and Reality (AISoLA'23)*, p 331-347, October 2023. [pdf]
DOI: 10.1007/978-3-031-46002-9_21.

[OC14] Preston Robinette†, Benjamin Heiner, Umberto Ravaioli, Nathaniel Hamilton†, ***Taylor T. Johnson***, Kerianne Hobbs, "Reinforcement Learning Heuristics for Aerospace Control Systems," *IEEE Aerospace Conference*, p 1-12, March 2022. [pdf]
DOI: 10.1109/AERO53065.2022.9843224.

[OC13] Patrick Musau†, Nathaniel Hamilton†, Diego Manzanas Lopez†, ***Taylor T. Johnson***, "Zero-Shot Policy Transfer in Autonomous Racing: Reinforcement Learning versus Imitation Learning," *IEEE International Conference on Assured Autonomy (ICAA'22)*, p 11-20, March 2022. [pdf]
DOI: 10.1109/ICAA52185.2022.00011
Acceptance Rate: 57.1 percent (16 of 28).

[OC12] Patrick Musau†, Nathaniel Hamilton†, Diego Manzanas Lopez†, Preston Robinette†, ***Taylor T. Johnson***, "On Using Real-Time Reachability for the Safety Assurance of Machine Learning Controllers," *IEEE International Conference on Assured Autonomy (ICAA'22)*, p 1-10, March 2022. [pdf]
DOI: 10.1109/ICAA52185.2022.00010
Acceptance Rate: 57.1 percent (16 of 28).

[OC11] Joel A. Rosenfeld, Rushikesh Kamalapurkar, L. Forest Gruss, ***Taylor T. Johnson***, "On Occupation Kernels, Liouville Operators, and Dynamic Mode Decomposition," *2021 American Control Conference (ACC)*, p 3957-3962, May 2021.
DOI: 10.23919/ACC50511.2021.9483121.

[OC10] Omar Ali Beg, Ajay P. Yadav, ***Taylor T. Johnson***, Ali Davoudi, "Formal Online Resiliency Monitoring in Microgrids," *IEEE 2020 Resilience Week (RWS)*, p 99-105, October 2020.
DOI: 10.1109/RWS50334.2020.9241272.

[OC9] Joel Rosenfeld°, Rushi Kamalapurkar, Ben Russo, ***Taylor T. Johnson***, "Occupation Kernels and Densely Defined Liouville Operators for System Identification," *IEEE 58th Conference on Decision and Control (CDC'19)*, p 6455-6460, December 2019. [pdf]
DOI: 10.1109/CDC40024.2019.9029337
Acceptance Rate: 57.7 percent (1340 of 2320).

[OC8] Luan Viet Nguyen†, Bardh Hoxha, ***Taylor T. Johnson***, Georgios Fainekos, "Mission Planning for Multiple Vehicles with Temporal Specifications using UxAS," *6th IFAC Analysis and Design of Hybrid Systems (ADHS'18)*, Vol: 51, No: 16, p 67-72, July 2018. [pdf]
DOI: 10.1016/j.ifacol.2018.08.012
Acceptance Rate: 69.4 percent (50 of 72).

[OC7] Hoang-Dung Tran†, Stanley Bak, ***Taylor T. Johnson***, "Reachability Analysis for One Dimensional Linear Parabolic Equations," *6th IFAC Analysis and Design of Hybrid Systems (ADHS'18)*, Vol: 51, No: 16, p 133-138, July 2018. [pdf]
DOI: 10.1016/j.ifacol.2018.08.023
Acceptance Rate: 69.4 percent (50 of 72).

[OC6] Weiming Xiang°, Hoang-Dung Tran†, Joel Rosenfeld°, ***Taylor T. Johnson***, "Reachable Set Estimation and Safety Verification for Piecewise Linear Systems with Neural Network Controllers," *American Control Conference (ACC'18)*, p 1574-1579, June 2018. [pdf]
DOI: 10.23919/ACC.2018.8431048
Acceptance Rate: 66.9 percent (1087 of 1623).

[OC5] Omar Beg†, Luan Viet Nguyen†, Ali Davoudi, ***Taylor T. Johnson***, "Computer-Aided Formal Verification of Power Electronics Circuits," *VDE Frontiers in Analog Computer Aided Design (FAC'17)*, p 21-26, July 2017. [pdf].

[OC4] Weiming Xiang°, ***Taylor T. Johnson***, Hoang-Dung Tran†, "On reachable set estimation for discrete-time switched linear systems under arbitrary switching," *American Control Conference (ACC'17)*, p 4534-4539, May 2017. [pdf]
DOI: 10.23919/ACC.2017.7963654
Acceptance Rate: 64.2 percent (944 of 1469).

[OC3] Weiming Xiang°, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Reachable set estimation and control for switched linear systems with dwell-time restriction," *55th IEEE Conference on Decision and Control (CDC'16)*, p 7246-7251, December 2016. [pdf]
DOI: 10.1109/CDC.2016.7799387
Acceptance Rate: 59.5 percent (1242 of 2086).

[OC2] Parasara Sridhar Duggirala, Chuchu Fan, Matthew Potok, Bolun Qi, Sayan Mitra, Mahesh Viswanathan, Stanley Bak, Sergiy Bogomolov, ***Taylor T. Johnson***, Luan Viet Nguyen†, Christian Schilling, Andrew Sogokon°, Hoang-Dung Tran†, Weiming Xiang°, "Tutorial: software tools for hybrid systems verification, transformation, and synthesis: C2E2, HyST, and TuLiP," *IEEE Conference on Control Applications (CCA'16)*, p 1024-1029, September 2016. [pdf]
DOI: 10.1109/CCA.2016.7587948.

[OC1] ***Taylor T. Johnson***, Sayan Mitra, Cédric Langbort, "Stability of Digitally Interconnected Linear Systems," *50th IEEE Conference on Decision and Control (CDC'11)*, p 2687-2692, December 2011. [pdf]
DOI: 10.1109/CDC.2011.6161264.

LIGHTLY REFEREED CONFERENCE PROCEEDINGS PAPERS

Acceptance based on peer review of abstracts or short papers.

[LC10] ***Taylor T. Johnson***, "Is Neural Network Verification Useful and What Is Next?," *61st Allerton Conference on Communication, Control, and Computing*, September 2025. [pdf].

[LC9] Krishna Muvva, Justin M. Bradley, Marilyn Wolf, ***Taylor T. Johnson***, "Assuring Learning-Enabled Components in Small Unmanned Aircraft Systems," *AIAA Scitech 2021 Forum*, January 2021. [pdf]
DOI: 10.2514/6.2021-0994.

[LC8] Diego Manzanas Lopez†, ***Taylor T. Johnson***, Hoang-Dung Tran, Stanley Bak, Xin Chen, Kerianne L. Hobbs, "Verification of Neural Network Compression of ACAS Xu Lookup Tables with Star Set Reachability," *AIAA Scitech 2021 Forum*, January 2021. [pdf]
DOI: 10.2514/6.2021-0995.

[LC7] Nathaniel Hamilton†, Lena Schlemmer, Christopher Menart, Chad Waddington, Todd Jenkins, ***Taylor T. Johnson***, "Sonic to knuckles: evaluations on transfer reinforcement learning," *SPIE Defense + Commercial Sensing - Unmanned Systems Technology XXII*, Vol: 11425, p 20, April 2020.
DOI: 10.1117/12.2559546.

[LC6] ***Taylor T. Johnson***, Raghunath Gannamaraju, and Sebastian Fischmeister, "A survey of electrical and electronic (e/e) notifications for motor vehicles," *24th International Technical Conference on the Enhanced Safety of Vehicles (ESV'15)*, p 1-15, 2015. [pdf].

[LC5] Leonardo Bobadilla, ***Taylor T. Johnson***, Amy LaViers, Umer Huzaifa, "Verified Planar Formation Control Algorithms by Composition of Primitives," *AIAA Science and Technology Forum and Exposition (SciTech'15)*, January 2015. [pdf]
DOI: 10.2514/6.2015-1541.

[LC4] ***Taylor T. Johnson***, Sayan Mitra, "Invariant Synthesis for Verification of Parameterized Cyber-Physical Systems with Applications to Aerospace Systems," *AIAA Infotech at Aerospace*, p 1-16, August 2013. [pdf]
DOI: 10.2514/6.2013-4811.

[LC3] Shamina Shahrin Hossain*, Sairaj Dhople, ***Taylor T. Johnson***, "Reachability Analysis of Closed Loop Switching Power Converters," *IEEE Power and Energy Conference at Illinois (PECI'13)*, p 130-134,

February 2013. [pdf]
DOI: 10.1109/PECI.2013.6506047.

[LC2] ***Taylor T. Johnson***, Zhihao Hong*, Akash Kapoor*, "Design Verification Methods for Switching Power Converters," *IEEE Power and Energy Conference at Illinois (PECI'12)*, p 1-6, February 2012. [pdf]
DOI: 10.1109/PECI.2012.6184587.

[LC1] ***Taylor T. Johnson***, Albert E. Hoefel, "Turbo-alternator stalling protection using available-power estimate," *IEEE Power and Energy Conference at Illinois (PECI'11)*, p 1-6, February 2011. [pdf]
DOI: 10.1109/PECI.2011.5740501. **Best Paper Award**

REFEREED WORKSHOP PROCEEDINGS PAPERS

Acceptance based on peer review of full papers.

[W35] Serena Serbinowska†, Ben Wooding°, Diego Manzanas Lopez°, Luke Nam†, Anne Tumlin†, Nicholas Potteiger, Hongchao Zhang°, ***Taylor T. Johnson***, "BehaVerify: A Formal Verification Tool for Behavior Trees," *8th International Workshop on Formal Methods for Autonomous Systems (FMAS'26), Southampton, UK (to appear)*, November 2026. [link].

[W34] Preston Robinette†, ***Taylor T. Johnson***, "MorphoMod: Visible Watermark Removal with Morphological Dilation," *SAFE: Synthetic & Adversarial ForEnsics Workshop at the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2026)*, June 2026. [pdf]
DOI: 10.48550/arXiv.2502.02676. Best paper award.

[W33] Diego Manzanas Lopez°, Samuel Sasaki†, ***Taylor T. Johnson***, "NNV: A Star Set Reachability Approach (Competition Contribution)," *2nd International Symposium on AI Verification (SAIV 2025)*, p 260-265, 2025.
DOI: 10.1007/978-3-031-99991-8_15.

[W32] Konstantin Kaulen, Tobias Ladner, Stanley Bak, Christopher Brix, Hai Duong, Thomas Flinkow, ***Taylor T. Johnson***, Lukas Koller, Edoardo Manino, ThanhVu H Nguyen, Haoze Wu, "The 6th International Verification of Neural Networks Competition (VNN-COMP 2025): Summary and Results," *2nd International Symposium on AI Verification (SAIV 2025)*, 2025. [pdf].

[W31] Serena Serbinowska†, Preston Robinette†, Gabor Karsai, ***Taylor T. Johnson***, "Formalizing Stateful Behavior Trees," *6th International Workshop on Formal Methods for Autonomous Systems (FMAS'24)*, Vol: 411, p 201-218, November 2024. [pdf]
DOI: 10.4204/EPTCS.411.14
Acceptance Rate: 73.6 percent (14 of 19). Best paper award.

[W30] Serena Serbinowska†, Nicholas Potteiger, Anne Tumlin†, ***Taylor T. Johnson***, "Verification of Behavior Trees with Contingency Monitors," *6th International Workshop on Formal Methods for Autonomous Systems (FMAS'24)*, Vol: 411, p 56-72, November 2024. [pdf]
DOI: 10.4204/EPTCS.411.4
Acceptance Rate: 73.6 percent (14 of 19).

[W29] Neelanjana Pal†, ***Taylor T. Johnson***, "Formal Verification of Long Short-Term Memory based Audio Classifiers: A Star based Approach," *5th International Workshop on Formal Methods for Autonomous Systems (FMAS'23)*, Vol: 395, p 162-179, November 2023. [pdf]
DOI: 10.4204/EPTCS.395.12
Acceptance Rate: 60.0 percent (15 of 25).

[W28] Sergiy Bogomolov, ***Taylor T. Johnson***, Diego Manzanas Lopez, Patrick Musau, Paulius Stankaitis, "Online Reachability Analysis and Space Convexification for Autonomous Racing," *5th International Workshop on Formal Methods for Autonomous Systems (FMAS'23)*, Vol: 395, p 95-112, November 2023. [pdf]
DOI: 10.4204/EPTCS.395.7
Acceptance Rate: 60.0 percent (15 of 25).

[W27] Diego Manzanas Lopez†, Patrick Musau†, Nathaniel Hamilton†, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Case Study: Safety Verification of an Unmanned Underwater Vehicle," *IEEE Workshop on Assured Autonomous Systems (WAAS'20), Co-located with the 41st IEEE Symposium on Security and Privacy (Oakland)*, 2020. [pdf].

[W26] Charles Hartsell, Nagabhushan Mahadevan, Shreyas Ramakrishna, Abhishek Dubey, Theodore Bapty, ***Taylor T. Johnson***, Xenofon Koutsoukos, Janos Sztipanovits, and Gabor Karsai, "CPS Design with Learning-Enabled Components: A Case Study," *30th International Workshop on Rapid System Prototyping (RSP'19)*, p 57-63, October 2019.
DOI: 10.1145/3339985.3358491.

[W25] Hoang-Dung Tran†, Luan V. Nguyen, Patrick Musau†, Weiming Xiang°, ***Taylor T. Johnson***, "Decentralized real-time safety verification for distributed cyber-physical systems," *3rd International Workshop on Methods and Tools for Distributed Hybrid Systems (DHS'19)*, 2019. .

[W24] Hoang-Dung Tran†, Feiyang Cai, Diego Manzanas Lopez†, Patrick Musau†, ***Taylor T. Johnson***, Xenofon Koutsoukos, "Safety Verification in Reinforcement Learning Control," *2nd Workshop on Formal Methods for ML-Enabled Autonomous Systems (FoMLAS'19)*, 2019. [pdf].

[W23] Hoang-Dung Tran†, Patrick Musau†, Diego Manzanas Lopez†, Xiaodong Yang†, Luan Viet Nguyen, Weiming Xiang, ***Taylor T. Johnson***, "Parallelizable reachability analysis algorithms for feed-forward neural networks," *7th IEEE/ACM International Conference on Formal Methods in Software Engineering (FormaliSE'19)*, p 31-40, May 2019. [pdf]
DOI: 10.1109/FormaliSE.2019.00012
Acceptance Rate: 32.5 percent (13 of 40).

[W22] Diego Manzanas Lopez†, Patrick Musau†, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Verification of closed-loop systems with neural network controllers," *EPiC Series in Computing 61, 6th Applied Verification for Continuous and Hybrid Systems (ARCH'19)*, Vol: 61, p 201-210, May 2019. [pdf]
DOI: 10.29007/btv1.

[W21] Tamas Kecskes, Patrik Meijer, ***Taylor T. Johnson***, Marcus Lucas, "Demo: A Design Studio for Verification Tools," *1st Workshop on Design Automation for CPS and IoT (DESTION'19)*, p 60-61, April 2019.
DOI: 10.1145/3313151.3314057.

[W20] Charles Hartsell, Nagabhushan Mahadevan, Shreyas Ramakrishna, Abhishek Dubey, Theodore Bapty, ***Taylor T. Johnson***, Xenofon Koutsoukos, Janos Sztipanovits, Gabor Karsai, "Model-based design for CPS with learning-enabled components," *1st Workshop on Design Automation for CPS and IoT (DESTION'19)*, p 1-9, April 2019. [pdf]
DOI: 10.1145/3313151.3313166.

[W19] Weiming Xiang°, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Specification-Guided Safety Verification for Feedforward Neural Networks," *2nd Verification of Neural Networks (VNN'19), AAAI 2019 Spring Symposium*, 2019. [pdf].

[W18] Weiming Xiang°, Xiaodong Yang†, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Reachability Analysis and Safety Verification for Neural Network Control Systems," *2nd Verification of Neural Networks (VNN'19), AAAI 2019 Spring Symposium*, 2019. [pdf].

[W17] Patrick Musau†, Diego Manzanas Lopez†, Hoang-Dung Tran†, ***Taylor T. Johnson***, "Differential Algebraic Equations (DAEs) with Varying Index (Benchmark Proposal)," *5th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'18)*, Vol: 54, p 174-184, September 2018.
DOI: 10.29007/4gj7.

[W16] Patrick Musau†, ***Taylor T. Johnson***, "Continuous-Time Recurrent Neural Networks (CTRNNs) (Benchmark Proposal)," *5th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'18)*, Vol: 54, p 196-207, September 2018.
DOI: 10.29007/6czp.

[W15] Hoang-Dung Tran†, Tianshu Bao†, ***Taylor T. Johnson***, "Discrete-Space Analysis of Partial Differential Equations (PDEs) (Benchmark Proposal)," *5th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'18)*, Vol: 54, p 185-195, September 2018.
DOI: 10.29007/fvpp.

[W14] Shafiul Chowdhury†, Lina Sera Varghese, Soumik Mohian, ***Taylor T. Johnson***, Christoph Csallner, "A Curated Corpus of Simulink Models for Model-based Empirical Studies," *4th International Workshop on Software Engineering for Smart Cyber-Physical Systems (SEsCPS '18)*, p 45-48, May 2018.
DOI: 10.1145/3196478.3196484.

[W13] ***Taylor T. Johnson***, "Reusable and Understandable Formal Verification for Cyber-Physical Systems," *1st International Workshop on Formal Approaches to Explainable VERification (FEVER'17)*, 2017. [pdf].

[W12] Hoang-Dung Tran†, Luan Viet Nguyen†, Weiming Xiang°, ***Taylor T. Johnson***, "Distributed Autonomous Systems (Benchmark Proposal)," *4th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'17)*, Vol: 48, p 33-43, June 2017. [pdf]
DOI: 10.29007/slz2.

[W11] Omar Beg†, Ali Davoudi, ***Taylor T. Johnson***, "Reachability Analysis of Transformer-Isolated DC-DC Converters (Benchmark Proposal)," *4th International Workshop on Applied Verification for Continuous*

and Hybrid Systems (ARCH'17), Vol: 48, p 52-64, June 2017. [pdf]
DOI: 10.29007/8xk7.

[W10] Shafiul Chowdhury†, ***Taylor T. Johnson***, Christoph Csallner, "CyFuzz: A Differential Testing Framework for Cyber-Physical Systems Development Environments," *6th Workshop on Design, Modeling and Evaluation of Cyber Physical Systems (CyPhy'16)*, Vol: 10107, p 46-60, October 2016. [pdf]
DOI: 10.1007/978-3-319-51738-4_4
Acceptance Rate: 60.0 percent (9 of 15).

[W9] Hoang-Dung Tran†, Luan Viet Nguyen†, ***Taylor T. Johnson***, "Large-Scale Linear Systems from Order-Reduction (Benchmark Proposal)," *3rd International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'16)*, Vol: 43, p 60-67, 2016. [pdf]
DOI: 10.29007/xk7x.

[W8] Andrew Sogokon°, Khalil Ghorbal, ***Taylor T. Johnson***, "Non-linear Continuous Systems for Safety Verification (Benchmark Proposal)," *3rd International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'16)*, Vol: 43, p 42-51, 2016. [pdf]
DOI: 10.29007/w94n.

[W7] Omar Beg†, Ali Davoudi, ***Taylor T. Johnson***, "Charge Pump Phase-Locked Loops and Full Wave Rectifiers for Reachability Analysis (Benchmark Proposal)," *3rd International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'16)*, Vol: 43, p 27-35, 2016. [pdf]
DOI: 10.29007/x211.

[W6] Luan Viet Nguyen†, Djordje Maksimovic, ***Taylor T. Johnson***, Andreas Veneris, "Quantified Bounded Model Checking for Rectangular Hybrid Automata," *9th International Workshop on Constraints in Formal Verification (CFV'15)*, 2015. [pdf].

[W5] Stanley Bak, Sergiy Bogomolov, ***Taylor T. Johnson***, "HyST: A Source Transformation and Translation Tool for Hybrid Automaton Models," *1st International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR'15)*, 2015. [pdf].

[W4] Hoang-Dung Tran†, Luan Viet Nguyen†, ***Taylor T. Johnson***, "Benchmark: A Nonlinear Reachability Analysis Test Set from Numerical Analysis," *2nd International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'15)*, Vol: 34, p 89-97, 2015. [pdf]
DOI: 10.29007/6dcf.

[W3] Stanley Bak, Sergiy Bogomolov, Marius Greitschus, ***Taylor T. Johnson***, "Benchmark: Stratified Controllers of Tank Networks," *2nd International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'15)*, Vol: 34, p 73-79, 2015. [pdf]
DOI: 10.29007/2ljt.

[W2] Luan Viet Nguyen†, Eric Nelson⋆, Amol Vengurlekar†, Ruoshi Zhang†, Kristopher I. White, Victor Salinas, ***Taylor T. Johnson***, "Model-based design and analysis of a reconfigurable continuous-culture bioreactor," *4th ACM SIGBED International Workshop on Design, Modeling, and Evaluation of Cyber-Physical Systems (CyPhy'14)*, p 48-51, April 2014. [pdf]
DOI: 10.1145/2593458.2593469
Acceptance Rate: 50.0 percent (14 of 28).

[W1] Luan Viet Nguyen†, ***Taylor T. Johnson***, "Benchmark: DC-to-DC Switched-Mode Power Converters (Buck Converters, Boost Converters, and Buck-Boost Converters).," *1st International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'14)*, Vol: 34, p 19-24, 2014. [pdf]
DOI: 10.29007/23pm.

OTHER WORKSHOP PROCEEDINGS PAPERS

Other workshop proceedings papers, not fully refereed, such as competition reports.

[OW14] Diego Manzanas Lopez, Matthias Althoff, Luis Benet, Clemens Blab, Marcelo Forets, Yuhao Jia, ***Taylor T. Johnson***, Manuel Kranzl, Tobias Ladner, Lukas Linauer, Philipp Neubauer, Sophie Neubauer, Christian Schilling, Huan Zhang, Xiangru Zhong, "ARCH-COMP24 Category Report: Artificial Intelligence and Neural Network Control Systems (AINNCS) for Continuous and Hybrid Systems Plants," *EPiC Series in Computing 103, 11th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH'24)*, Vol: 103, p 64-121, October 2024.
DOI: 10.29007/mxld.

[OW13] Diego Manzanas Lopez, Matthias Althoff, Marcelo Forets, ***Taylor T. Johnson***, Tobias Ladner, Christian Schilling, "ARCH-COMP23 Category Report: Artificial Intelligence and Neural Network Control Systems (AINNCS) for Continuous and Hybrid Systems Plants," *EPiC Series in Computing 96, 10th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH'23)*, Vol: 96, p 89-51,

October 2023. [pdf]
DOI: 10.29007/x38n.

[OW12] ***Taylor T. Johnson***, "ARCH-COMP23 Repeatability Evaluation Report," *EPiC Series in Computing 96, 10th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH'23)*, Vol: 96, p 189-181, October 2023. [pdf]
DOI: 10.29007/q313.

[OW11] Diego Manzanas Lopez, Matthias Althoff, Luis Benet, Xin Chen, Jiameng Fan, Marcelo Forets, Chao Huang, Taylor T. Johnson, Tobias Ladner, Wenchao Li, Christian Schilling, Qi Zhu, "ARCH-COMP22 Category Report: Artificial Intelligence and Neural Network Control Systems (AINNCS) for Continuous and Hybrid Systems Plants," *EPiC Series in Computing 90, 9th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH22)*, Vol: 90, p 142-98, September 2022. [pdf]
DOI: 10.29007/wfgr.

[OW10] ***Taylor T. Johnson***, "ARCH-COMP22 Repeatability Evaluation Report," *EPiC Series in Computing 90, 9th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH22)*, Vol: 90, p 222-212, September 2022. [pdf]
DOI: 10.29007/djqx.

[OW9] ***Taylor T. Johnson***, Diego Manzanas Lopez†, Luis Benet, Marcelo Forets, Sebastián Guadalupe, Christian Schilling, Radoslav Ivanov, Taylor J. Carpenter, James Weimer, Insup Lee, "ARCH-COMP21 Category Report: Artificial Intelligence and Neural Network Control Systems (AINNCS) for Continuous and Hybrid Systems Plants," *EPiC Series in Computing 80, 8th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH21)*, Vol: 80, p 90-119, December 2021. [pdf]
DOI: 10.29007/kfk9.

[OW8] ***Taylor T. Johnson***, "ARCH-COMP21 Repeatability Evaluation Report," *EPiC Series in Computing 80, 8th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH21)*, Vol: 80, p 153-160, December 2021. [pdf]
DOI: 10.29007/zqdx.

[OW7] ***Taylor T. Johnson***, Diego Manzanas Lopez†, Patrick Musau†, Hoang-Dung Tran†, Elena Botoeva, Francesco Leofante, Amir Maleki, Chelsea Sidrane, Jiameng Fan and Chao Huang, "ARCH-COMP20 Category Report: Artificial Intelligence and Neural Network Control Systems (AINNCS) for Continuous and Hybrid Systems Plants," *EPiC Series in Computing 74, 7th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH'20)*, Vol: 74, p 107-139, September 2020. [pdf]
DOI: 10.29007/9xgv.

[OW6] ***Taylor T. Johnson***, "ARCH-COMP20 Repeatability Evaluation Report," *EPiC Series in Computing 74, 7th International Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH'20)*, Vol: 74, p 175-183, September 2020. [pdf]
DOI: 10.29007/8dp4.

[OW5] Diego Manzanas Lopez†, Patrick Musau†, Hoang-Dung Tran†, Souradeep Dutta, Taylor J. Carpenter, Radoslav Ivanov, ***Taylor T. Johnson***, "ARCH-COMP19 Category Report: Artificial Intelligence/Neural Network Control Systems (AINNCS) for Continuous and Hybrid Systems Plants," *EPiC Series in Computing 61, 6th Applied Verification for Continuous and Hybrid Systems (ARCH'19)*, Vol: 61, p 103-119, May 2019. [pdf]
DOI: 10.29007/rgv8.

[OW4] ***Taylor T. Johnson***, "ARCH-COMP19 Repeatability Evaluation Report," *EPiC Series in Computing 61, 6th Applied Verification for Continuous and Hybrid Systems (ARCH'19)*, Vol: 61, p 162-169, May 2019. [pdf]
DOI: 10.29007/wbl3.

[OW3] ***Taylor T. Johnson***, "ARCH-COMP18 Repeatability Evaluation Report," *5th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'18)*, Vol: 54, p 128-134, September 2018.
DOI: 10.29007/n9t3.

[OW2] ***Taylor T. Johnson***, "ARCH-COMP17 Repeatability Evaluation Report," *4th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH'17)*, Vol: 48, p 175-180, June 2017. [pdf]
DOI: 10.29007/7hvk.

[OW1] Luan Viet Nguyen, Christian Schilling, Sergiy Bogomolov, ***Taylor T. Johnson***, "HyRG: a random generation tool for affine hybrid automata," *18th International Conference on Hybrid Systems: Computation and Control (HSCC'15)*, p 289-290, April 2015. [pdf]
DOI: 10.1145/2728606.2728650.

POSITION/EDITORIAL/OPINION PAPERS

Acceptance based on peer review of abstracts or short papers.

[E2] Daniel Neider, ***Taylor T. Johnson***, "Track C1: Safety Verification of Deep Neural Networks (DNNs)," *1st International Conference on Bridging the Gap between AI and Reality (AISoLA'23)*, p 217-224, October 2023. [pdf]
DOI: 10.1007/978-3-031-46002-9_12.

[E1] ***Taylor T. Johnson***, Sayan Mitra, "Handling Failures in Cyber-Physical Systems: Potential Directions," *Real-Time Systems Symposium (RTSS'09)*, 2009. [pdf]. **Award for *Most Interesting Cyber-Physical Systems Research Problem***

PATENTS AND PATENT APPLICATIONS

[P2] "Systems and Methods for Providing Speech-to-Text Recognition and Autosummarization," ***Taylor T. Johnson***. VU 17131, MCC Docket Number 10644-043PV1, Patent Application, February 1, 2018.

[P1] "Control of a Component of a Downhole Tool", Albert Hoefel, Francois Bernard, Kent D. Harms, Sylvain Ramshaw, Shayan Darayan, and ***Taylor T. Johnson***. Patent No. US 9222352, Patent Issued December 29, 2015. Based in part on paper [LC1]. [pdf]

PRESENTATIONS

KEYNOTE/PLENARY PRESENTATIONS

[KT13] Invited plenary presentation, "Debate on whether safe large-scale deployments of AI-based autonomous cyber-physical systems (CPS) require changing how AI models are designed and implemented (member of the opposing team, with Sanjit A. Seshia and Samarjit Chakraborty; supporting team: Martina Maggio, Archan Misra, and Alessandro Abate; moderated by Tarek Abdelzaher)," at Cyber-Physical Systems and Internet of Things (CPS-IoT) Week 2026, Saint Malo, France, May 13, 2026.

[KT12] Invited keynote presentation, "From Neural Network Verification to Formally Verifying Neuro-Symbolic Artificial Intelligence (AI)," at 25th High Confidence Software and Systems Conference (HCSS'25), Annapolis, MD, May 12, 2025.

[KT11] Invited plenary presentation, "Neural Network Verification for Medical Imaging Analysis," at SPIE Medical Imaging 2025, San Diego, CA, February 18, 2025.

[KT10] Invited keynote presentation, "From Neural Network Verification to Formal Verification for Neuro-Symbolic Artificial Intelligence (AI)," at 22nd ACM-IEEE International Symposium on Formal Methods and Models for System Design (MEMOCODE 2024), Raleigh, NC, October 4, 2024.

[KT9] Invited keynote presentation, "From Neural Network Verification to Formal Verification for Neuro-Symbolic Artificial Intelligence (AI)," at 7th International Workshop on Dependable and Secure Machine Learning (DSML 2024), Brisbane, Australia, June 24, 2024.

[KT8] Invited plenary presentation, "From Neural Network Verification to Verification for Neuro-Symbolic Systems: Verifying Safety and Liveness in Neuro-Symbolic Behavior Trees (NSBTs)," at the Lorentz Center Workshop Engineering Reliable Autonomous Systems (ERAS 2024), Leiden, the Netherlands, June 12, 2024.

[KT7] Invited plenary presentation, "Formal Verification of Neural Networks in Autonomous Systems," Los Alamos, New Mexico, April 22, 2024.

[KT6] Invited keynote presentation, "Formal Verification of Neural Networks in Autonomous Cyber-Physical Systems," at International Workshop on Perception for Safety-Critical Cyber-Physical Systems (PerCPS 2023), San Antonio, TX, May 9, 2023.

[KT5] Invited keynote presentation, "Formal Verification for Neural Networks in Autonomous Cyber-Physical Systems," at 4th Workshop on Formal Methods for Autonomous Systems (FMAS 2022), Berlin, Germany, September 26, 2022.

[KT4] Invited plenary presentation, "Repeatability, CPS-VO Design Studios, ARCH Benchmarks, and ARCH-COMP Repository," at the 7th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH 2020), at IFAC World Congress, Berlin, Germany, July 12, 2020.

[KT3] Invited keynote presentation, "Verification for Autonomous Cyber-Physical Systems with Machine Learning Components," at the 6th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH 2019), at Cyber-Physical Systems and Internet of Things (CPS-IoT) Week 2019, Montreal, Canada, April 15, 2019.

[KT2] Plenary presentation, "Verification of Neural Networks," at the AAAI Spring Symposium, Stanford University, Stanford, CA, March 26, 2019.

[KT1] Invited keynote presentation, "Real-Time Reachability for Verified Simplex Design," at 8th International Workshop on Numerical Software Verification 2015 (NSV 2015) at Cyber-Physical Systems Week (CPS Week 2015), Seattle, WA, April 13, 2015.

INVITED PRESENTATIONS

[IT64] Presented "Let's verify vision-language-action models: why and how could we get there?" at Dagstuhl Seminar 26421: Advancing Testability and Verifiability of CPS with Neurosymbolic and Large Language Models, Schloss Dagstuhl, Wadern, Germany, October 2026.

[IT63] Presented "Let's Verify ChatGPT: What Would We Verify & How Could We Get There? Bonus: Agentic Engineering is Coming," at NII Shonan Meeting 235: LLM-guided Synthesis, Verification, and Testing of Learning-Enabled CPS, Shonan Village Center, Kanagawa, Japan, March 9, 2026.

[IT62] Presented "Agentic Engineering, Verification, and Validation: Automating Design and Assurance for Aerospace," at NASA Revolutionary Engineering Methods (REM) Workshop, NASA Ames Research Center, Moffett Field, CA, February 23, 2026.

[IT61] Presented "The Verification of Neural Networks Competition (VNN-COMP)," at AAAI-26 Lab Forum LH03, 40th AAAI Conference on Artificial Intelligence, Singapore, January 20, 2026.

[IT60] Presented "Neural Network Verification for Formally Verifying Neuro-Symbolic Artificial Intelligence (AI)," at School of Computer Science and Informatics, University of Liverpool, Liverpool, UK, December 12, 2025.

[IT59] Presented "Reliable Agentic Artificial Intelligence (AI): Challenges and Opportunities," at Interdisciplinary Workshop on Machine Learning and AI, University of Liverpool, Liverpool, UK, December 11, 2025.

[IT58] Presented "Neural Network Verification for Formally Verifying Neuro-Symbolic Artificial Intelligence (AI)," at School of Computer Science, University of Birmingham, Birmingham, UK, December 9, 2025.

[IT57] Presented "From Neural Network Verification to Formally Verifying Neuro-Symbolic Artificial Intelligence (AI)," at Massachusetts Institute of Technology (MIT), Laboratory for Information and Decision Systems (LIDS), Cambridge, MA, October 10, 2025.

[IT56] Presented "From Neural Network Verification to Formally Verifying Neuro-Symbolic Artificial Intelligence (AI)," at RMIT University, School of Computing Technologies (SCT), Melbourne, Australia, September 30, 2025 (virtual).

[IT55] Presented "Let's Verify ChatGPT: What Would We Verify and How Could We Get There?" at Dagstuhl Seminar 25392: Specification Engineering: Foundations for the Future of Software Development, Schloss Dagstuhl, Wadern, Germany, September 24, 2025.

[IT54] Presented "Is Neural Network Verification Useful and What Is Next?" at 61st Allerton Conference on Communication, Control, and Computing, Monticello, IL, September 17, 2025.

[IT53] Presented "Formal Verification for Neuro-Symbolic Systems: Verifying Safety and Liveness in Neuro-Symbolic Behavior Trees (NSBTs)," Berkeley, California, May 22, 2024.

[IT52] Presented "Formal Verification of Neural Networks: From Autonomous Systems to Security and Beyond," Albuquerque, New Mexico, April 23, 2024.

[IT51] Presented "Techniques for Safety Assurance: Low-level Control," at Dagstuhl Seminar 24071: Safety Assurance for Autonomous Mobility, Schloss Dagstuhl, Wadern, Germany, February 11, 2024.

[IT50] Presented "Metacognition in Autonomous Cyber-Physical Systems with Neural Network Verification, Repair, and Monitoring," Tempe, AZ, November 15, 2023.

[IT49] Presented "Formal Verification for Neural Networks in Autonomous Cyber-Physical Systems," Limerick, Ireland, June 7, 2023.

[IT48] Presented "Formal Verification for Neural Networks in Autonomous Cyber-Physical Systems," Oxford, UK, January 25, 2023.

[IT47] Presented "Formal Verification for Neural Networks in Autonomous Cyber-Physical Systems," Madrid, Spain, December 15, 2022.

[IT46] Presented "Formal Verification for Neural Networks in Autonomous Cyber-Physical Systems," Rhodes, Greece, October 25, 2022.

[IT45] Presented "How Good are Current Neural Network Formal Verification Methods," AI in Aviation Standard Committee (SAE G-34/EUROCAE WG-114), Technical Talks: Regular Sessions, December 2, 2021 (virtual).

[IT44] Presented "Semantic Segmentation Neural Network Verification," Stony Brook University, CSE-643: Cyber-Physical Systems & Verification Seminar, September 23, 2021 (virtual).

[IT43] Presented "Verification and assurance tools for Cyber-physical Systems with Learning-Enabled Components," IEEE Real Time Systems Symposium (RTSS), Application of DARPA Assured Autonomy Program Technologies to Autonomous Learning-Enabled Real-Time Systems Hot Topics Day Workshop, December 1, 2020 (virtual).

[IT42] Presented "Verifying Deep Neural Networks in Autonomous Cyber-Physical Systems," University of Southern California, Center for Cyber-Physical Systems and the Internet of Things (CCI) and Ming Hsieh Institute for Electrical Engineering (MHI) Seminar, November 18, 2020 (virtual).

[IT41] Presented "Verifying Deep Neural Networks in Autonomous Cyber-Physical Systems," University of Memphis, Computer Science Colloquium, March 16, 2020.

[IT40] Presented "Challenges for Perception Verification in Autonomy," at CPS Verification & Validation: Industrial Challenges & Foundations: Safe Learning and Optimization, Carnegie Mellon University, Pittsburgh, PA, December 11, 2019.

[IT39] Presented "Verifying Deep Neural Networks in Autonomous Cyber-Physical Systems," Georgetown University, Computer Science Colloquium, November 14, 2019.

[IT38] Presented "Formal Verification: An Introduction," DARPA seL4 Summit, September 23, 2019.

[IT37] Presented "Verifying Neural Networks in Autonomous Cyber-Physical Systems," Stony Brook University, Computer Science Seminar, July 12, 2019.

[IT36] Presented "Verifying Neural Networks in Autonomous Cyber-Physical Systems," Waterloo University, Electrical and Computer Engineering Seminar, June 3, 2019.

[IT35] Presented "Verifying Neural Networks in Autonomous Cyber-Physical Systems," McGill University, Computer Science Seminar, May 28, 2019.

[IT34] Presented "Safety Assurance in Autonomous Cyber-Physical Systems," University of Nebraska Lincoln, Computer Science and Engineering Colloquium, April 2, 2019.

[IT33] Presented "Safety and Security Assurance in Autonomous Cyber-Physical Systems," University of Illinois at Urbana-Champaign, Information Trust Institute (ITI) Seminar, March 11, 2019.

[IT32] Presented "Safety Assurance in Cyber-Physical Systems built with Learning-Enabled Components," at the CPS Verification & Validation: Industrial Challenges & Foundations: Safe Implementation of CPS, Carnegie Mellon University, Pittsburgh, PA, December 12, 2018.

[IT31] Presented "Safety and Security Assurance in Autonomous Cyber-Physical Systems with Hyperproperties & Hybrid Automata," University of Tennessee at Chattanooga, SimCenter Research Seminar, October 19, 2018.

[IT30] Presented three invited lectures on "Design-Time and Runtime Verification for Safe Autonomous Cyber-Physical Systems," at the Summer School on Cyber-Physical Systems, Halmstad University, Halmstad, Sweden, June 11-15, 2018.

[IT29] Presented "SEC Faculty Travel Program Award Presentation: Formal Specification, Verification, & Falsification for Autonomous Cyber-Physical Systems with Hyperproperties & Hybrid Automata," at the Computer Science and Engineering Graduate Seminar (CSCE 681), Texas A&M University, College Station, TX, March 5, 2018.

[IT28] Presented "Software Defects in Medical Devices," Division of Hematology and Oncology, Laboratory Medicine Rounds, November 10, 2017.

[IT27] Presented "Real-Time Reachability for Safety Verification of Autonomous Cyber-Physical Systems," at the CPS Verification & Validation: Industrial Challenges & Foundations: Safe Implementation of CPS, Carnegie Mellon University, Pittsburgh, PA, May 12, 2017.

[IT26] Presented "Real-Time Reachability for Safety of Autonomous Systems," at the Computer Science and Engineering Graduate Seminar (CSCE 681), Texas A&M University, College Station, TX, March 6, 2017.

[IT25] Presented "Real-Time Reachability for Verification of Autonomous Cyber-Physical Systems," at the Electrical and Computer Engineering Seminar Series (ECE698/699), Rice University, Houston, TX, March 3, 2017.

[IT24] Presented "Real-Time Reachability for Verification of Autonomous Systems," at the Computer Science Seminar, University of Houston, Houston, TX, February 20, 2017.

[IT23] Invited Presentation, "Cyber-Physical Specification Mismatches," at the Air Force Research Laboratory, Air Vehicles Directorate, Wright-Patterson Air Force Base, Dayton, OH, June 28, 2016.

[IT22] Invited Presentation, "Hybrid automata: from verification to implementation," at the MathWorks Faculty Research Summit, Natick, MA, June 4, 2016.

[IT21] Invited Presentation, "Automated Formal Verification for Cyber-Physical Systems," at the Federal Laboratory Day, Laboratory for Telecommunication Sciences, University of Maryland, College Park, MD, March 29, 2016.

[IT20] Invited Presentation, "Automated Formal Verification for Cyber-Physical Systems," at the Electrical Engineering and Computer Science Department, Vanderbilt University, Nashville, TN, March 14, 2016.

[IT19] Invited Presentation, "Automated Formal Verification for Aerospace Cyber-Physical Systems," at the Aerospace Engineering Department Seminar, University of Michigan, Ann Arbor, MI, March 8, 2016.

[IT18] Presented "Temporal and Functional Correctness in Support of Systems Biology Research," at the Green Center for Systems Biology, University of Texas Southwestern Medical Center at Dallas (UT Southwestern), Dallas, TX, January 13, 2016.

[IT17] Presented "Automating Verification of Cyber-Physical Systems with HyST," at the Formal Methods Seminar, Department of Computer Science, University of Illinois at Urbana-Champaign, Urbana, IL, December 11, 2015.

[IT16] Presented "Real-Time Reachability of Hybrid Systems for Formally Verified Supervisory Control," at the Electrical Engineering Colloquium, University of North Texas, Denton, TX, September 18, 2015.

[IT15] Presented "Automated Formal Verification of Distributed Cyber-Physical Systems," at Systems and Information Engineering Department Colloquium, University of Virginia, Charlottesville, VA, December 19, 2014.

[IT14] Presented "Cyber-Physical Specification Mismatch Identification with Dynamic Analysis," at CPS Verification and Validation: Industrial Challenges and Foundations (CPS V&V I&F), Carnegie Mellon University, Pittsburgh, PA, December 12, 2014.

[IT13] Presented "Software Verification and Validation Methods: Automated Formal Verification of Distributed Cyber-Physical Systems," at IEEE Metrocon, Arlington, TX, October 2, 2014.

[IT12] Presented "Automated Formal Verification of Distributed Cyber-Physical Systems," at School of Computer Science Colloquium, McGill University, Montreal, Quebec, Canada, August 12, 2014.

[IT11] Presented "Automated Formal Verification of Distributed Cyber-Physical Systems," at Electrical and Computer Engineering Colloquium, University of Waterloo, Waterloo, Ontario, Canada, July 25, 2014.

[IT10] Presented "Automated Formal Verification of Distributed Cyber-Physical Systems," at Air Force Research Laboratory's Safe & Secure Systems and Software Symposium (S5), Dayton, OH, June 10, 2014.

[IT9] Presented "Automated Formal Verification of Distributed Cyber-Physical Systems," at Trust and Security Seminar, Information Trust Institute, University of Illinois at Urbana-Champaign, Urbana, IL, May 16, 2014.

[IT8] Presented "Automated Formal Verification for Reliable Cyber-Physical Systems," Dallas, TX, April 2, 2014.

[IT7] Invited presentation, "Verification Techniques and Tools for Reliable Cyber-Physical Systems," University of Pennsylvania, Philadelphia, TX, April 3, 2013.

[IT6] Invited presentation, "Verification Techniques and Tools for Reliable Cyber-Physical Systems," Sandia National Laboratory, Livermore, CA, March 20, 2013.

[IT5] Invited presentation, "Verification Techniques and Tools for Reliable Cyber-Physical Systems," University of Texas at San Antonio, San Antonio, TX, March 17, 2013.

[IT4] Invited presentation, "Verification Techniques and Tools for Reliable Cyber-Physical Systems," Texas State University, San Marcos, TX, March 5, 2013.

[IT3] Invited presentation, "Verification Techniques and Tools for Reliable Cyber-Physical Systems," University of Texas at Arlington, Arlington, TX, March 4, 2013.

[IT2] Invited presentation, "Verification Techniques and Tools for Reliable Cyber-Physical Systems," Old Dominion University, Norfolk, VA, March 1, 2013.

[IT1] Presented "Safety Verification for Parameterized Hybrid Automata Networks," at Formal Methods in Systems Engineering (FORSYTE), Austrian Society for Rigorous Systems Engineering (ARiSE), Technische Universitat Wien and Institute of Science and Technology Austria, Vienna, Austria, January 24, 2013.

CONFERENCE/WORKSHOP PAPER PRESENTATIONS

[CT27] Presented paper [C25], "Star-Based Reachability Analysis of Deep Neural Networks", 23rd International Symposium on Formal Methods (FM'19), Porto, Portugal, October 2019.

[CT26] Presented paper [C24], "Reachability Analysis for High-Index Linear Differential Algebraic Equations (DAEs)", 17th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'19), Amsterdam, the Netherlands, August 2019.

[CT25] Presented paper [C23], "Decentralized Real-Time Safety Verification for Distributed Cyber-Physical Systems", Formal Techniques for Distributed Objects, Components, and Systems (FORTE'19), Copenhagen, Denmark, June 2019.

[CT24] Presented paper [W25], "Decentralized Real-Time Safety Verification for Distributed Cyber-Physical Systems," 3rd International Workshop on Methods and Tools for Distributed Hybrid Systems (DHS 2019), Associated with CONCUR 2019, Amsterdam, The Netherlands, 26 August 2019.

[CT23] Presented paper [W23], "Parallelizable Reachability Analysis Algorithms for Feed-forward Neural Networks", In Proceedings of the 7th International Workshop on Formal Methods in Software Engineering (FormaliSE'19), 2019, May.

[CT22] Presented paper [OW5], "ARCH-COMP19 Category Report: Artificial Intelligence and Neural Network Control Systems (AINNCS) for Continuous and Hybrid Systems Plants", In ARCH19. 6th International Workshop on Applied Verification of Continuous and Hybrid Systems, April 2019.

[CT21] Presented paper [OW4], "ARCH-COMP19 Repeatability Evaluation Report", In ARCH19. 6th International Workshop on Applied Verification of Continuous and Hybrid Systems, 2019, April.

[CT20] Presented paper [W18], "Reachability Analysis and Safety Verification for Neural Network Control Systems," Verification of Neural Networks (VNN19), AAAI 2019 Spring Symposium, March 2019.

[CT19] Presented paper [OC7], "Reachability Analysis for One Dimensional Linear Parabolic Equation," at the IFAC Conference on Analysis and Design of Hybrid Systems (ADHS 2018), Oxford, United Kingdom, July 12, 2018.

[CT18] Presented paper [W16], "Benchmark: Continuous-Time Recurrent Neural Networks," at the 5th Applied Verification for Continuous and Hybrid Systems (ARCH 2018), Oxford, United Kingdom, July 13, 2018.

[CT17] Presented paper [W17], "Benchmark: Differential Algebraic Equations (DAEs) with Varying Index," at the 5th Applied Verification for Continuous and Hybrid Systems (ARCH 2018), Oxford, United Kingdom, July 13, 2018.

[CT16] Presented paper [W15], "Benchmark: Discrete-Space Analysis of Partial Differential Equations," at the 5th Applied Verification for Continuous and Hybrid Systems (ARCH 2018), Oxford, United Kingdom, July 13, 2018.

[CT15] Presented paper [C15], "Probabilistic Formal Verification of the SATS Concept of Operation," at the 8th NASA International Symposium on Formal Methods (NFM 2016), Minneapolis, MN, June 8, 2016.

[CT14] Presented paper [W7], "Charge Pump Phase-Locked Loops and Full Wave Rectifiers for Reachability Analysis (Benchmark Proposal)," at Applied Verification for Continuous and Hybrid Systems (ARCH), Workshop Co-located with CPSWeek 2016, Vienna, Austria, April 11, 2016.

[CT13] Presented paper [W9], "Large-Scale Linear Systems from Order-Reduction (Benchmark Proposal)," at Applied Verification for Continuous and Hybrid Systems (ARCH), Workshop Co-located with CPSWeek 2016, Vienna, Austria, April 11, 2016.

[CT12] Presented paper [W6], "Quantified Bounded Model Checking for Rectangular Hybrid Automata," at the 9th International Workshop on Constraints in Formal Verification (CFV 2015), Austin, TX, November 5, 2015.

[CT11] "The 7th International Verification of Neural Networks Competition (VNN-COMP 2026): Summary and Results," 4th International Symposium on AI Verification (SAIV 2026), at the Federated Logic Conference (FLoC 2026), Lisbon, Portugal, July 27, 2026.

[CT10] Presented paper [LC6], "A Survey of Electrical and Electronic (E/E) Notifications for Motor Vehicles," Gothenburg, Sweden, June 9, 2015.

[CT9] Presented paper [C11], "Cyber-Physical Specification Mismatch Identification with Dynamic Analysis," International Conference on Cyber-Physical Systems (ICCPS 2015) at Cyber-Physical Systems Week (CPS Week 2015), Seattle, WA, April 16, 2015.

[CT8] Presented paper [LC5], "Verified Planar Formation Control Algorithms by Composition of Primitives," AIAA SciTech, Kissimmee, FL, January 8, 2015.

[CT7] Presented paper [C8], "Anonymized Reachability of Hybrid Automata Networks," 12th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS), Florence, Italy, September 9, 2014.

[CT6] Presented paper [W2], "Model-Based Design and Analysis of a Reconfigurable Continuous-Culture Bioreactor," 4th ACM SIGBED International Workshop on Design, Modeling, and Evaluation of Cyber-Physical Systems, Workshop Co-located with CPSWeek 2014, Berlin, Germany, April 14, 2014.

[CT5] Presented paper [W1], "Benchmark: DC-to-DC Switched-Mode Power Converters (Buck Converters, Boost Converters, and Buck-Boost Converters)," Applied Verification for Continuous and Hybrid Systems (ARCH), Workshop Co-located with CPSWeek 2014, Berlin, Germany, April 14, 2014.

[CT4] Presented paper [C4], "A Small Model Theorem for Rectangular Hybrid Automata Networks," IFIP International Conference on Formal Techniques for Distributed Systems: Joint International Conference of 14th Formal Methods for Open Object-Based Distributed Systems and 32nd Formal Techniques for Networked and Distributed Systems (FORTE/FMOODS), KTH, Stockholm, Sweden, June 15, 2012.

[CT3] Presented paper [LC2], "Design Verification Methods for Switching Power Converters," 3rd IEEE Power and Energy Conference at Illinois (PECI), University of Illinois at Urbana-Champaign, Champaign, IL, February 24, 2012.

[CT2] Presented paper [LC1], "Turbo-Alternator Stalling Protection using Available Power Estimate," 2nd IEEE Power and Energy Conference at Illinois (PECI), University of Illinois at Urbana-Champaign, Urbana, IL, February 25, 2011.

[CT1] Presented paper [C2], "Safe Flocking in Spite of Actuator Faults," 12th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), New York, NY, September 22, 2010.

OTHER PRESENTATIONS

[OT14] Panel presentation with Matthias Hein (University of Tubingen), Cho-Jui Hsieh (UCLA), ***Taylor T. Johnson*** (Vanderbilt University), Wan-Yi Lin (Bosch Center for AI), Aditi Raghunathan (Stanford University), Florian Tramer (Stanford University), Workshop on Security and Reliability of Machine Learning (SRML'21), Affiliated with the 19th International Symposium on Automated Technology for Verification and Analysis (ATVA'21), October 18, 2021.

[OT13] Panel presentation, "Panel discussion: Formal Methods and Machine Learning: Progress and Future directions," with Clark Barrett, ***Taylor T. Johnson***, Alessio Lomuscio, and Luca Pulina, 2nd Workshop on Formal Methods for ML-Enabled Autonomous Systems (FoMLAS'19), Affiliated with CAV'19, July 2019.

[OT12] Presented "Automated Formal Verification for Cyber-Physical Systems," at the College of Engineering Advisory Board Meeting, University of Texas at Arlington, Arlington, TX, January 29, 2016.

[OT11] Presented "Formal Verification for Software-Controlled Power Electronics," Air Force Research Laboratory's Safe & Secure Systems and Software Symposium (S5), Dayton, OH, June 11, 2015.

[OT10] Presented "Automated Formal Verification of Distributed Cyber-Physical Systems," Air Force Research Laboratory's Information Directorate, Rome, NY, August 5, 2014.

[OT9] Presented "Safe Flocking in Spite of Actuator Faults and Planar Distributed Formation Control with One-Dimensional Primitives," Air Force Research Laboratory's Information Directorate, Rome, NY, July 23, 2014.

[OT8] Presented "Automatic Safety Verification of Distributed Cyber-Physical Systems," College Station, TX, March 28, 2014.

[OT7] Presented "Verification and Validation for Reliable Cyber-Physical Systems," Computer Science Colloquium, University of Texas at Arlington, Arlington, TX, November 11, 2013.

[OT6] Presented "Safety Verification of Distributed Cyber-Physical Systems," at the Formal Methods Seminar, Department of Computer Science, University of Illinois at Urbana-Champaign, Urbana, IL, September 27, 2012.

[OT5] Presented paper [OC1], "Stability of Digitally Interconnected Linear Systems" at the 7th CSL Student Conference, January 27, 2012, Urbana, IL.

[OT4] Presented "Fault-Tolerant Distributed Cyber-Physical Systems" to the Control Systems Group, University of New Mexico, Albuquerque, NM, June 16, 2011.

[OT3] Presented "Automatic Parameterized Verification of Distributed Algorithms" at 6th CSL Student Conference, Urbana, IL, January 28, 2011.

[OT2] Presented paper [C1], "Safe and Stabilizing Distributed Cellular Flows" to the Multi-Robot Systems Lab, Rice University, Houston, TX, July 15, 2010.

[OT1] Presented paper [C1], "Safe and Stabilizing Distributed Cellular Flows" at the 5th CSL Student Conference, Urbana, IL, January 29, 2010.

DEMONSTRATION AND TUTORIAL PRESENTATIONS

Acceptance based on peer review of abstracts or short papers.

[D12] Jonathan Andreasen, Diego Manzanas Lopez°, ***Taylor T. Johnson***, Yatis Dodia, "Parallel Verification of Neural Networks Applied to Medical Imaging (Research Poster)," *36th International Conference for High Performance Computing, Networking, Storage, and Analysis / Supercomputing Conference (SC'24)*, November 2024. .

[D11] ***Taylor T. Johnson***, Hoang-Dung Tran, Diego Manzanas Lopez, "Tutorial: Safe, Secure, and Trustworthy Artificial Intelligence (AI) via Formal Verification of Neural Networks and Autonomous Cyber-Physical Systems (CPS) with NNV," *54th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN'24)*, p 65-66, June 2024. [pdf]
DOI: 10.1109/DSN-S60304.2024.00027.

[D10] Hoang-Dung Tran, Diego Manzanas Lopez, ***Taylor T. Johnson***, "Tutorial: Verification and Validation of Neural Networks in Automated Vehicles using the Neural Network Verification (NNV) Tool," *IEEE International Automated Vehicle Validation Conference (IAVVC'23)*, October 2023. .

[D9] Hoang-Dung Tran, Diego Manzanas Lopez, ***Taylor T. Johnson***, "Tutorial: Neural Network and Autonomous Cyber-Physical Systems Formal Verification for Trustworthy AI and Safe Autonomy," *International Conference on Embedded Software (EMSOFT'23)*, p 1-2, September 2023. [pdf]
DOI: 10.1145/3607890.3608454.

[D8] Shafiul Azam Chowdhury, Sohil Lal Shrestha, ***Taylor T. Johnson***, Christoph Csallner, "Demo: SLEMI: Finding Simulink Compiler Bugs through Equivalence Modulo Input (EMI)," *42nd International Conference on Software Engineering (ICSE'20)*, p 1-4, June 2020. [pdf]
DOI: 10.1145/3377812.3382147
Acceptance Rate: 33.3 percent (25 of 75)
Double-Blind Review (**DBR**).

[D7] Hoang-Dung Tran†, Diego Manzanas Lopez°, Xiaodong Yang†, Patrick Musau†, Luan Viet Nguyen†, Weiming Xiang°, ***Taylor T. Johnson***, "NNV Demo: A Neural Network Verification Tool," *2nd IEEE Workshop on Design Automation for CPS and IoT (DESTION'20), Co-located with IEEE/ACM CPS-IoT Week 2020*, p 21-22, April 2020. [pdf]
DOI: 10.1109/DESTION50928.2020.00010.

[D6] Stephen A. Rees, Tamas Kecskes, Patrik Meijer, ***Taylor T. Johnson***, Katie Dey, Paulo Tabuada, Marcus Lucas, "Cyber-physical systems virtual organization: Active resources: enabling reproducibility, improving accessibility, and lowering the barrier to entry," *10th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS'19)*, p 340-341, 2019.
DOI: 10.1145/3302509.3313331.

[D5] Demonstration, "Fuzzing Cyber-Physical System Development Environments With CyFuzz," Pittsburgh, PA, April 2017.

[D4] Presented demo, "Hybrid Systems Model Transformations with HyST," at the 8th NASA International Symposium on Formal Methods (NFM 2016), Minneapolis, MN, June 7, 2016.

[D3] Demonstration, "HyST: A Source Transformation and Translation Tool for Hybrid Automaton Models," Seattle, Washington, April 2015.

[D2] Luan Viet Nguyen†, Christian Schilling, Sergiy Bogomolov, ***Taylor T. Johnson***, "Poster: HyRG: A Random Generation Tool for Affine Hybrid Automata," *18th International Conference on Hybrid Systems: Computation and Control (HSCC'15)*, p 289-290, 2015.
DOI: 10.1145/2728606.2728650.

[D1] Demonstration, "The Passel Verification Tool for Hybrid Automata Networks," Philadelphia, PA, April 9, 2013.

POSTER PRESENTATIONS

Acceptance based on peer review of abstracts, short papers, or posters.

[Po14] "Formal Verification of Neural Networks and Neural Network Control Systems (NNCS) with the Neural Network Verification (NNV) Tool," DARPA Resilient Software Systems Colloquium, Arlington, VA, June 17, 2025.

[Po13] Jonathan Andreasen, Diego Manzanas Lopez, ***Taylor T. Johnson***, Yatis Dodia, "Parallel Verification of Neural Networks Applied to Medical Imaging (Research Poster)," *36th International Conference for High Performance Computing, Networking, Storage, and Analysis / Supercomputing Conference (SC'24)*, November 2024. .

[Po12] "Architecture for an Indoor Distributed Cyber-Physical System Composed of Mobile Robots and Fog Computing Nodes," Dayton, Ohio, August 2017.

[Po11] "Moving Target Tracking with Formation Control by Groups of UAVs," Dayton, Ohio, August 2017.

[Po10] "Hyperproperties of Real-Valued Signals," Pittsburgh, PA, April 2017.

[Po9] "Towards Bounded Model Checking for Timed and Hybrid Automata with a Quantified Encoding," Austin, TX, 2015.

[Po8] "Computer-Aided Formal Verification for Power Electronics Cyber-Physical systems," Austin, TX, 2015.

[Po7] "HyRG: A Random Generation Tool for Affine Hybrid Automata," Seattle, Washington, April 2015.

[Po6] "Transforming Differential Algebraic Equations (DAEs) to Hybrid Automaton Models for Formal Verification," Dallas, Plano, Texas, March 28, 2015.

[Po5] "Towards Verified Planar Formation Control Algorithms by Composition of Primitives," Berkeley, CA, July 12, 2014.

[Po4] "Model-Based Design and Analysis of a Continuous-Culture Bioreactor for Systems Biology Experiments," College Station, TX, March 28, 2014.

[Po3] ***Taylor T. Johnson*** and Sayan Mitra, "Verification of Distributed Cyber-Physical Systems: Stability of Digitally Interconnected Linear Systems," Poster Session, Coordinated Science Laboratory 60th Anniversary Symposium, University of Illinois at Urbana-Champaign, Urbana, IL, October 28, 2011. [poster pdf]

[Po2] ***Taylor T. Johnson*** and Sayan Mitra, "Verification of Distributed Cyber-Physical Systems: Stability of Digitally Interconnected Linear Systems," Poster Session, Coordinated Science Laboratory Symposium on Emerging Topics in Control and Modeling: Cyber-Physical Systems, Urbana, IL, October 20, 2011. [poster pdf]

[Po1] "Power Usage of Time and Event-Triggered Paradigms: A Case Study," San Francisco, CA, April 13, 2009.

SOFTWARE TOOLS AND ARTIFACTS

We develop a large amount of research software, particularly verification software tool prototypes, some of which is peer-reviewed through activities such as software repeatability evaluations. Source code for each major artifact is indicated below, and is maintained on the following accounts (Git/Mercurial): `https://github.com/verivital`, `https://bitbucket.org/verivital/`, `https://bitbucket.org/ttj/`, `https://github.com/ttj`.

[S15] ha2slsf: This software tool converts hybrid automata to semantically equivalent Simulink/Stateflow models, and is being merged into HyST. Development timeframe: 2015-present. Related papers include [J15,C10].

[S14] AbLECPS and the ALC Toolchain: Assurance-based Learning-enabled Cyber-Physical Systems and the associated toolchain, integrating our DARPA Assured Autonomy verification tools, such as NNV and BehaVerify, with design tools for learning-enabled CPS, built on WebGME. Development timeframe: 2018-present. Related papers include [LC9,W26].

[S13] STLGym: This software tool supports safe reinforcement learning, training control policies that satisfy timed and untimed specifications written in signal temporal logic (STL). Development timeframe: 2022-present. Related papers include [C37].

[S12] Veritex: This software tool verifies and repairs neural networks, written in Python, implementing different data structures and approaches compared to NNV, and supporting repair of a network that fails its specification rather than only reporting the failure. Development timeframe: 2021-present. Related papers include [BC2,C30].

[S11] Behavior Tree Verification Tool (BehaVerify): This software tool implements methods to formally verify behavior trees. Development timeframe: 2020-present. Related papers include [C36,W31,W30]. https://github.com/verivital/behaverify

[S10] NNV and nnmt: Neural network verification and neural network model transformation tools. These software tools implement methods for formally verifying properties of systems incorporating neural networks, as well as for interchange with other neural network verification tools and related software, such as ONNX, PyTorch, Keras, TensorFlow, etc. Development timeframe: 2018-present. Related papers include [C52,C49,C40,C35,C31,C27,C29,J22,W27,C25,J19,W23,W22,OW5,J12]. Available online: https://github.com/verivital/nnv/ and https://github.com/verivital/nnmt. Reproducible CodeOcean capsules are also available (CAV'20 Tool [C27]: `https://doi.org/10.24433/CO.0221760.v1`, CAV'20 ImageStar Paper [C29]: `https://doi.org/10.24433/CO.3351375.v1`).

[S9] Hybrid Automata Learning Toolkit (HAutLearn): This software tool implements methods to infer hybrid automaton models from time-series data. Development timeframe: 2018-present. Related papers include [J26]. https://github.com/verivital/hautlearn

[S8] daev: Differential algebraic equation (DAE) verification tool. This software tool implements methods to formally verify safety properties of systems incorporating DAEs, specifically targeted for DAEs with index greater than one, for which it is impossible to represent as classical hybrid automata without model transformations. Development timeframe: 2017-present. Related papers include [C24]. https://github.com/verivital/daev

[S7] pdev: Partial differential equation (PDE) verification tool. This software tool implements numerical reachability analysis methods for systems incorporating PDEs. Development timeframe: 2017-present. Related papers include [OC7]. https://github.com/verivital/pdev

[S6] SLForge and CyFuzz: Random differential testing for CPS Development Toolchains. This software tool randomly generates CPS model artifacts, currently targeting the MathWorks' Simulink/Stateflow (SLSF). Development timeframe: 2015-present. Related papers include [C26,C21,W10]. https://github.com/verivital/slsf_randgen

[S5] HyST: Hybrid Source Transformer. This software tool takes hybrid automaton models in the SpaceEx XML or Compositional Interchange Format (CIF) formats and translates them to other popular hybrid systems verification and reachability analysis tools, including Flow*, dReach, HyComp, HyCreate, and development tools including MathWorks' Simulink/Stateflow (SLSF). Development timeframe: 2014-present. Related papers include [C27,J15,C14,C13,C12,C10]. *Best repeatability evaluation award [C14]*. Available online: http://www.verivital.com/hyst/

[S4] rtreach: Real-time reachability algorithms for hybrid systems with linear and nonlinear dynamics: This software implements reachability analysis algorithms based on face-lifting that have worst-case execution time (WCET) guarantees. Related papers include [C23,J4,C9]. Development timeframe: 2014-present. Available online: https://github.com/verivital/rtreach/

[S3] Hynger: Hybrid iNvariant GEneratoR: This software tool takes MathWorks' Simulink/Stateflow (SLSF) models, instruments them, and produces traces for dynamic analysis in tools like Daikon. Related papers include [J16,J9,J14,C11]. Development timeframe: 2014-present. Available online: http://www.verivital.com/hynger/

[S2] HyRG: Hybrid Random Generator. This software tool randomly generates hybrid automaton models, and is integrated within HyST [S5] to generate models in output formats compatible with several different formal verification tools for hybrid systems. Development timeframe: 2014-2016. Related papers include [C12]. Available online: http://www.verivital.com/hyrg/

[S1] Passel: This software tool is used for parameterized verification (sometimes known as uniform verification) of parameterized networks of hybrid automata, and has been used to verify safety specifications in several distributed cyber-physical systems such as proving safe separation in air traffic control protocols. Development timeframe: 2011-2014. Related papers include [C8,LC4,C4,C3]. Available online: https://publish.illinois.edu/passel-tool/

RESEARCH MENTORING (CURRENT)

POSTDOCTORAL RESEARCH SCHOLAR AND RESEARCH SCIENTIST ADVISER

[PD2] Hongchao Zhang, Fall 2025 – Present. Research: Learning and Verification for Differential Algebraic Equations (DAEs). Co-advised with Prof. Ahmad Taha and Prof. Meiyi Ma.

[PD1] Ben Wooding, Fall 2025 – Present. Research: Learning and Verification for AI and Robotics.

DOCTORAL DISSERTATION ADVISER

[DS6] Summer 2026 – Present: Kendra Givens, Computer Science, Vanderbilt University, Co-advised with Prof. Bryan Ward.

[DS5] Spring 2026 – Present: Luke Nam, Computer Science, Vanderbilt University, Dissertation Topic: Verification for Autonomous Robotic Systems.

[DS4] Fall 2025 – Present: Michaela Winfree, Computer Science, Vanderbilt University, Co-advised with Prof. Gautam Biswas.

[DS3] Fall 2023 – Present: Thuy Dung (Judy) Nguyen, Computer Science, Vanderbilt University, Dissertation Topic: Robust federated and adversarial machine learning. Co-advised with Prof. Kevin Leach.

[DS2] Fall 2023 – Present: Samuel Sasaki, Computer Science, Vanderbilt University, Dissertation Topic: Runtime verification in machine learning.

[DS1] Fall 2023 – Present: Anne Tumlin, Computer Science, Vanderbilt University, Dissertation Topic: Fairness verification in graph neural networks. Co-advised with Prof. Tyler Derr. Major awards: 2024 DOE CSGF (∼$500k).

MASTER'S THESIS ADVISER

[MS1] None currently.

UNDERGRADUATE RESEARCHERS

Summer 2026 – Present **Caleb Ching**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2026 – Present **Jamie Fong**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2026 – Present **Zichen Zhu**, *Vanderbilt BSc CS, Project: "Spiking neural network (SNN) verification," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

RESEARCH MENTORING (PAST / GRADUATED ALUMNI)

POSTDOCTORAL RESEARCH SCHOLAR ALUMNI

[PDA7] Tianshu Bao, Fall 2023 – Fall 2025.

[PDA6] Diego Manzanas Lopez, Fall 2022 – Fall 2025.

[PDA5] Spring 2025 – Fall 2025: Navid Hashemi, Computer Science, Vanderbilt University, Research Topic: Neural network verification and neuro-symbolic AI. Next/current position: Apple.

[PDA4] 8/2017 – 8/2019: Joel Rosenfeld, Electrical Eng. and Computer Science, Research Topic: Optimization-Based Verification for Cyber-Physical Systems. Next/current position: Assistant Professor, Mathematics and Statistics, University of South Florida. Website: `http://joel.rosenfeldresearch.com/`

[PDA3] 11/2015 – 8/2019: Weiming Xiang, Electrical Eng. and Computer Science, Research Topic: Unbounded-Time Reachability Analysis for Switched Systems. Research results: [J22,OC7,J18,OC6,J12,BC1,J13,J10,J6,OC4,W12,OC3,OC2]. Next/current position: Assistant Professor, School of Computer and Cyber Sciences, Augusta University. Website: `https://xiangweiming.github.io/`

[PDA2] 1/2016 – 5/2017: Andrew Sogokon, Electrical Eng. and Computer Science, Vanderbilt University, Research Topic: Liveness Verification for Hybrid Automata. Research results: [J11,C19,C16,OC2,W8]. Next position: Postdoc at Carnegie Mellon University. Current position: Lecturer at the University of Southampton, UK. Website: `https://sites.google.com/site/andrewsogokon/`

[PDA1] 3/2016 – 8/2016: Khaza Anuarul Hoque, Department of Computer Science and Eng., University of Texas at Arlington, Research Topic: Formal Verification for Aerospace CPS. Research results: [J14,C17,C15]. Next position: Research Fellow at Oxford University. Current position: Assistant Professor, Electrical Engineering and Computer Science (EECS) at University of Missouri Columbia. Website: `https://www.kahoque.com/`

DOCTORAL DISSERTATION ALUMNI

[DA12] Summer 2019 – Summer 2025: Serena Serbinowska, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Topic: Hyperproperties in adversarial machine learning and cyber-physical systems. Next position: Toyota.

[DA11] Fall 2020 – May 2025: Preston Robinette, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Topic: Robustness verification in steganography and watermarking neural networks. Major awards: 2021 NDSEG Fellowship (∼$500k). Next position: Google DeepMind.

[DA10] Summer 2019 – Fall 2023: Neelanjana Pal, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Topic: Robustness verification in time-series neural networks.

[DA9] Fall 2017 – Summer 2023: Tianshu Bao, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Topic: Partial differential equation for physics-informed machine learning.

[DA8] Fall 2017 – Summer 2022: Diego Manzanas Lopez, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Title: Learning and Verification of Dynamical Systems with Neural Network Components. Research results: [BC1].

[DA7] Fall 2017 – Summer 2022: Xiaodong Yang, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Title: Reachability Analysis and Repair of Deep Neural Networks in Autonomous Systems. Next position: Research Scientist at Visa Research.

[DA6] Summer 2017 – Summer 2022: Nathaniel (Nate) Hamilton, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Title: Safe and Robust Reinforcement Learning for Autonomous Cyber-Physical Systems. Major awards: 2019 NDSEG Fellowship.

[DA5] Fall 2017 – Spring 2022: Patrick Musau, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Title: Safety Assurance of Autonomous Learning-Enabled Cyber Physical Systems. Research results: [BC1].

[DA4] Spring 2015 – Summer 2020: Hoang-Dung Tran, Electrical Eng. and Computer Science, Vanderbilt University, Dissertation Topic: Formal Verification of Distributed Cyber-Physical Systems. Research results: [C25,C23,C24,W23,OC7,J13,J18,J10,J6,W12,OC3,OC2,W9,W4,J2]. Next position: Assistant

Professor, Computer Science and Engineering, University of Nebraska Lincoln. Website: https://sites.google.com/site/trhoangdung/

[DA3] Fall 2015 – Fall 2019: Shafiul Chowdhury, Department of Computer Science and Eng., University of Texas at Arlington, Dissertation Topic: Randomized Differential Testing for CPS Development Environments. Co-advised with Prof. Christoph Csallner. Research results: [C21,W10]. Next position: Research Scientist, Facebook. Website: https://shafiul.github.io/

[DA2] Spring 2014 – Summer 2018: Luan Viet Nguyen, Department of Computer Science and Eng., University of Texas at Arlington, Dissertation Topic: Specifications for Cyber-Physical Systems. Research results: [J14,C20,J15,C18,W11,W12,J6,OC2,W9,W6,C12,W4,W1,W2,J2]. Next position: Postdoc at University of Pennsylvania, then Postdoc at University of Notre Dame; Current position: Assistant Professor at University of Dayton. Website: https://luanvietnguyen.github.io/

[DA1] Summer 2014 – Summer 2017: Omar Beg, Department of Electrical Engineering, University of Texas at Arlington, Dissertation Topic: Reachability Analysis of Power Electronics and Systems. Co-advised with Prof. Ali Davoudi. Research results: [J16,J15,J8,J9,OC5,W11,W7]. Next position: Assistant Professor at University of Texas at Permian Basin. Website: https://sites.google.com/site/omaralibeg/

OTHER FORMER GRADUATE STUDENTS

[FS2] Fall 2017 – Fall 2018: Yuanqi Xie, Electrical Eng. and Computer Science, Vanderbilt University, Research Topic: Auto-scribing electronic health records with natural language processing and autosummarization.

[FS1] Fall 2017 – Spring 2018: Ran Hao, Electrical Eng. and Computer Science, Vanderbilt University, Research Topic: Safe reinforcement learning for distributed autonomous robots.

MASTER'S THESIS ALUMNI

[MA9] Spring 2025 – Fall 2025: Charlie Perkins, Computer Science, Vanderbilt University, Thesis: "Cinder: Differential and Symbolic Equivalence Checking for Diffcolic Analysis of LLM-Based C-to-Rust Translation".

[MA8] Summer 2017 – Fall 2021: Ayana Wild, Electrical Eng. and Computer Science, Vanderbilt University, Thesis Topic: Examining the Impact of Curricular and Robotic Interventions.

[MA7] Fall 2019 – Summer 2020: Ulysses Yu, Electrical Eng. and Computer Science, Vanderbilt University, Thesis Topic: Combining Reachable Set Computation with Neuron Coverage.

[MA6] Fall 2015 – Summer 2016: Randy Long, Electrical Engineering, University of Texas at Arlington, Thesis Topic: Time-Triggered Controller Area Network Design for Formula SAE Racecars and Technique for Measuring CPU Usage on Systems with Nested and Non-Nested Interrupts. Next position: Engineer at Faraday Future.

[MA5] Fall 2015 – Summer 2016: Rahul Kawadgave, Electrical Engineering, University of Texas at Arlington, Thesis Topic: Automatic Conflict Classification for Vulnerable Road Users. Next position: Engineer at Qualcomm.

[MA4] Fall 2014 – Spring 2016: Nathan Hervey, Computer Science and Eng., University of Texas at Arlington, Thesis Topic: Distributed Robotics Localization and Control. Next position: Software Engineer at Lockheed Martin.

[MA3] Fall 2014 – Spring 2015: Shweta Hardas, Electrical Engineering, University of Texas at Arlington, Thesis: "Virtual and Hardware Prototyping of a Modular Multilevel Inverter for Photovoltaics". Next position: Engineer at Cummins.

[MA2] Fall 2013 – Spring 2015: Ruoshi Zhang, Electrical Engineering, University of Texas at Arlington, Thesis: "Model-Based Design and Analysis of Automotive Systems using Time-Triggered Controller Area Networks (TTCAN)". Next position: PhD student in Electrical Engineering at University of Texas at Arlington.

[MA1] Fall 2013 – May 2015: Amol Vengurlekar, Electrical Engineering, University of Texas at Arlington, Thesis: "Design of a Real-Time Reconfigurable Bioreactor". Next position: Engineer at EchoStar.

MASTER'S PROJECT ALUMNI

[MP4] Fall 2018 – Summer 2019: Ronald Picard, Vanderbilt University, Master of Engineering: Cyber-Physical Systems, Project: "Action Schema Neural Networks: Generalized Policies for Stochastic Planning Problems in the Wargaming Domain". Next position: Computer Engineer at Air Force Research Laboratory, Aerospace Systems Directorate, Autonomous Controls Branch.

[MP3] Summer 2018 – Fall 2018: Ruohan Wang, Vanderbilt University, Computer Science, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization". Next position: Software Engineer at Google.

[MP2] Spring 2014 – Spring 2015: Zankar Bapat, University of Texas at Arlington, Electrical Engineering, Project: "Robot Localization with Circle Detection". Next position: Engineer at Ferro Technologies.

[MP1] Fall 2012–Spring 2013, University of Illinois at Urbana-Champaign, Electrical and Computer Engineering: Shamina Shahrin Hossain (first-year graduate student), Project: Verification of Closed-Loop Switching Power Converters (resulted in paper [LC3]).

UNDERGRADUATE RESEARCH PROJECT ALUMNI

Summer 2026 **Judy Hsu**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2026 **Ibrahim Boudaoud**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2026 **Bishal Panthi**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2026 **Yitong Wang**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2026 **Yutong Qiu**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2025 **Kiersten Brennan**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2025 **Jaycie V. Nguyen**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2025 **Aarij Atiq**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2025 **Zhenxuan Shao**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2025 **Vision R. Panta**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2025 **Kevin L. Chen**, *Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Spring 2025 **Grant Petrosky**, *Vanderbilt BSc ECE, Project: "Autonomous systems development," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2024 **Lana Cartailler**, *Vanderbilt BSc CS, Project: "Malware Detection Graph Neural Network Verification," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2023 **Seojin Lee**, *Johns Hopkins University BSc CS, Project: "Semantic Segmentation Neural Network Verification," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2023 **Jingyu (Gloria) Zhang**, *Vanderbilt BSc CS, Project: "Semantic Segmentation Neural Network Verification," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2022 **Amanda Zhou**, *Vanderbilt BSc CS, Project: "Trustworthy Artificial Intelligence (AI)," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2020 **Yi Li**, *Vanderbilt BSc CS, Project: "Neural Network and Machine Learning Verification," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2020 **Siqi (Christine) Zhao**, *Vanderbilt BSc CS, Project: "Neural Network and Machine Learning Verification," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2019–Spring 2020 **Diandry A Rutayisire**, *Vanderbilt BSc CS, Project: "Autonomous F1/10 Race Car," Vanderbilt University School of Engineering (VUSE) Summer Research Program and Independent Research*.

Summer 2019 **Luke Bhan**, *Vanderbilt BSc CS, Project: "Autonomous F1/10 Race Car," Vanderbilt University School of Engineering (VUSE) Research Volunteer*.

Summer 2019 **Jiuke Huang**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2019 **Rong Wang**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2019 **Julie Truong**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2019 **Angela R Maliakal**, *Tufts University BSc CS, Project: "Controlling Groups of Swarm Robots," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Spring 2019, Fall 2018 **Arda Turkmen**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE), Individual Study*.

Spring 2019, Fall 2018 **Harsha Vankayalapati**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE), Individual Study.*

Spring 2019 **Matthew Kenigsberg**, *Vanderbilt BSc CS, Project: "Learning Hybrid Automata from Data," Vanderbilt University School of Engineering (VUSE), Individual Study.*

Fall 2018 **Teo Lee**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Individual Study.*

Fall 2018 **Joshua Wilson**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots," Vanderbilt University School of Engineering (VUSE) Individual Study.*

Summer 2018 **Daniel Hong**, *Johns Hopkins BSc ME, Project: "Controlling Groups of Swarm Robots," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Joshua Wilson**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Jackson Brewer**, *Vanderbilt BSc ME, Project: "Controlling Groups of Swarm Robots," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Yufei Yan**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Arda Turkmen**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Xueqing Zhao**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Teo Lee**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Sally Kwok**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2018 **Xue Zou**, *Vanderbilt BSc CS, Project: "Auto-Scribing Electronic Health Records (EHRs) with Natural Language Processing (NLP) and Autosummarization," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2017 **Daniel Hong**, *Johns Hopkins BSc ME, Project: "Controlling Groups of Swarm Robots with Android Studio and Microsoft Kinect," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2017 **Christina Wang**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots with Android Studio and Microsoft Kinect," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2017 **Timothy Liang**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots with Android Studio and Microsoft Kinect," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2017 **Anissa Alexander**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots with Android Studio and Microsoft Kinect," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2017 **Austin Wilms**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots with Android Studio and Microsoft Kinect," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2017 **Stirling Carter**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots with Android Studio and Microsoft Kinect," Vanderbilt University School of Engineering (VUSE) Summer Research Program.*

Summer 2017 **Yinghui Yang**, *Vanderbilt BSc CS, Project: "Controlling Groups of Swarm Robots with Android Studio and Microsoft Kinect," Vanderbilt University School of Engineering (VUSE) Summer Research Program*.

Summer 2015 **Ewin Tang**, *Major: Mathematics, University of Texas at Austin, Topic: Using the Isabelle Theorem Prover to Prove Some of the Top 100 Formalized Theorems*.

Fall 2013–Spring 2014 **Eric Nelson**, *Computer Science, University of Texas at Arlington, Project: Xenomai Real-Time Operating System (RTOS) Design for Continuous-Culture Bioreactor*.

Fall 2011 **Zhongdong Zhu**, *University of Illinois at Urbana-Champaign, Project: Simulating Safe and Stabilizing Distributed Cellular Flows*.

NSF RESEARCH EXPERIENCES FOR UNDERGRADUATES (REU) PROJECT ALUMNI

[REU2] Summer 2012: Lucas Buccafusca, University of Colorado at Boulder, Project: Safe Distributed Flocking Implemented on the StarL Distributed Robotics Framework. Information Trust Institute, NSF Research Experiences for Undergraduates (REU) Summer Program, University of Illinois at Urbana-Champaign.

[REU1] Summer 2009: Shashank Gupta, Indian Institute of Technology, Kharagpur, Project: Distributed Algorithms for Sensor Networks Implemented on Net-X. Information Trust Institute, NSF Research Experiences for Undergraduates (REU) Summer Program, University of Illinois at Urbana-Champaign.

PROMOTING UNDERGRADUATE RESEARCH IN ENGINEERING (PURE) ALUMNI, University of Illinois at Urbana-Champaign

[PURE10] Spring 2012 (co-advised with Adam Zimmerman): Jordan Kravitz, Project: Distributed Robotics in StarL.

[PURE9] Fall 2011: Akash Kapoor, Project: Reachability Analysis of Power Converters (resulted in paper [LC2]).

[PURE8] Spring 2011: Hershed Tilak, Project: Implementation of a Boundary Detection Algorithm.

[PURE7] Spring 2011: Jeffrey Lale, Project: A Randomized Algorithm for Deadlock-Free Robot Routing.

[PURE6] Spring 2011: Zhihao (Ted) Hong: Modeling Parameterized Power Converters using Timed Automata (resulted in paper [LC2]).

[PURE5] Fall 2010: Hershed Tilak, Project: Simulating Coupled Inverted Pendulums in Matlab.

[PURE4] Fall 2009: Jerry Sun and Dongeek Shin, Joint Project: Simulating a Planar Conveyor System in Matlab.

[PURE3] Spring 2009: Rohan Bali, Project: Simulating Coupled Inverted Pendulums in Matlab.

[PURE2] Spring 2009: Patrick Gu, Project: Extending Giotto to xGiotto on nxtOSEK for Lego Mindstorms.

[PURE1] Fall 2008: Haeran Lee, Soonwoo (Daniel) Chang, Youngho (Ryan) Park, and Yosub Shin, Joint Project: Reachability Analysis of Switched-Mode Power Converters.

SPONSORED RESEARCH SUPPORT

2013 – present **Funded Research Grants, Contracts, and Fellowships**.

Total Research Funding (PI + Co-PI, active and completed projects): $\sim \$38.4$M

Research Funding as PI: $\sim \$4.9$M (Sole PI Share: $\sim \$2.5$M). Research Funding as Co-PI: $\sim \$33.5$M.

Our research is currently supported by DARPA, DOE, and NSA, and past research has been supported by AFOSR, AFRL, ARO, DoD, NSF, NVIDIA, ONR, the MathWorks, the SEC, Toyota, USAF, and USDOT.

ACTIVE RESEARCH SUPPORT

[AG5] Taylor T. Johnson (PI), with Meiyi Ma, Ahmad F. Taha, Mark J. Williams (Co-Investigators), "Reliable AI and Critical Infrastructure: Compliance, Resilience, and Explainability in Electric and Water Networks," VSEC Seed Project Fund (VSEC), Vanderbilt University (VU), Award Amount: $199,095, 2026-08-01 to 2028-07-31, Duration: 2.0 years.

[AG4] Taylor T. Johnson (PI), with Julie L. Johnson (Co-PI), "Pathways and Resources for Interdisciplinary Student Majors: AI, Technology, and Inclusive Computing (PRISMATIC)," Center for Inclusive Computing (CIC), Northeastern University (NEU), Award Amount: $247,102, 2026-05-01 to 2028-08-31.

[AG3] Taylor T. Johnson (Co-PI), with Gabor Karsai (PI), Jonathan Sprinkle (Co-PI), "Dependable AI for National Security (DAINS)," Department of Energy (DOE), Award Amount: $3,500,000, 2025-09-01 to 2028-08-31, Duration: 3.0 years.

[AG2] Taylor T. Johnson (Co-PI), with Kevin Leach (PI), "Improving Malware Classifiers with Plausible Novel Samples," Science of Security (SoS), National Security Agency (NSA), Award Amount: $750,000, 2023-10-01 to 2026-12-31, Duration: 3.3 years.

[AG1] Taylor T. Johnson (Co-PI), with Gabor Karsai (PI), Xenofon Koutsoukos (Co-PI), Abhishek Dubey (Co-PI), Janos Sztipanovits, "Assured Neuro Symbolic Components and Systems (ANSCS)," Assured Neuro

Symbolic Learning and Reasoning (ANSR), Defense Advanced Research Projects Agency (DARPA), Award Amount: $5,673,000, 2023-03-01 to 2027-02-28, Award Number: FA8750-23-C-0518, Duration: 4.0 years.

COMPLETED RESEARCH SUPPORT

[CG30] Taylor T. Johnson (PI), with Hoang-Dung Tran (PI, UNL), "Collaborative Research: FMitF: Track II: Enhancing the Neural Network Verification (NNV) Tool for Industrial Applications," Formal Methods in the Field (FMitF), Directorate for Computer and Information Science and Engineering (CISE:FMitF), National Science Foundation (NSF), Award Amount: $100,000, 2022-10-01 to 2025-03-31, Award Number: 2220426, Duration: 2.5 years.

[CG29] Taylor T. Johnson (PI), with Xiaowei Huang (University of Liverpool), "Workshops on Safe, Secure, and Trustworthy Generative Artificial Intelligence," Vanderbilt-Liverpool Joint Research Seed Grant (VU-Liverpool), Vanderbilt University (VU), 2025-09-01 to 2026-08-31.

[CG28] Taylor T. Johnson (PI), "High-Performance Computing for Neural Network Verification," Georgia Tech Research Institute (GTRI) subcontract; NSA-associated research (GTRI), U.S. Department of the Air Force (USAF), Award Amount: $25,000, 2023-09-01 to 2024-09-30, Award Number: Prime: FA8075-18-D-0008 (BOA 1146); delivery order: FA807520F0060; Vanderbilt subcontract: D9104-S24, Duration: 1.1 years.

[CG27] Taylor T. Johnson (PI), "Verification of Autonomous Systems through Hyperproperties and Machine Learning," Air Force Office of Scientific Research (AFOSR), 2023-02-15 to 2024-02-14, Award Number: FA9550-23-1-0135.

[CG26] Taylor T. Johnson (PI), with Ipek Oguz (Co-PI), Meiyi Ma (Co-PI), "FMitF: Track I: Generative Neural Network Verification in Medical Imaging Analysis," Formal Methods in the Field (FMitF), Directorate for Computer and Information Science and Engineering (CISE:FMitF), National Science Foundation (NSF), Award Amount: $750,000, 2022-10-01 to 2026-09-30, Award Number: 2220401, Duration: 4.0 years.

[CG25] Taylor T. Johnson (PI (Sole)), "Verification of Autonomous Systems: Hyperproperties in Machine Learning," Trusted AI Challenge (TAI), Air Force Office of Scientific Research (AFOSR), Award Amount: $200,000, 2021-12-15 to 2023-12-14, Award Number: FA9550-22-1-0019, Duration: 2.0 years.

[CG24] Taylor T. Johnson (PI), with Joel Rosenfeld (PI), Rushikesh Kamalapurkar (PI), "Collaborative Research: Operator Theoretic Methods for Identification and Verification of Dynamical Systems," Energy, Power, Control, and Networks Program, Division of Electrical, Communications and Cyber Systems, Directorate for Engineering (ENG:ECCS:EPCN), National Science Foundation (NSF), Award Amount: $229,935, 2020-10-01 to 2024-09-30, Duration: 4.0 years.

[CG23] Taylor T. Johnson (PI), with Jerry Zhu, Kate Saenko, "NSF Workshop on Safety and Trust in Artificial Intelligence Enabled Systems," Software and Hardware Foundations, Division of Computing and Communication Foundations, Directorate for Computer and Information Science and Engineering (SHF), National Science Foundation (NSF), Award Amount: $50,000, 2022-08-01 to 2023-07-31, Award Number: 2231543, Duration: 1.0 years.

[CG22] Taylor T. Johnson (PI), with Christoph Csallner (PI), "SHF: Small: Collaborative Research: Fuzzing Cyber-Physical System Development Tool Chains with Deep Learning (DeepFuzz-CPS)," Software and Hardware Foundations, Division of Computing and Communication Foundations, Directorate for Computer and Information Science and Engineering (CISE:CCF:SHF), National Science Foundation (NSF), Award Amount: $248,473, 2019-10-01 to 2022-09-30, Duration: 3.0 years.

[CG21] Taylor T. Johnson (Co-PI), with Gabor Karsai, Xenofon Koutsoukos (Co-PI), Ted Bapty (Co-PI), Janos Sztipanovits (Oversight), "Assurance-Based Learning-Enabled Cyber-Physical Systems (ALC)," Assured Autonomy (AA), Defense Advanced Research Projects Agency (DARPA), Award Amount: $7,200,000, 2018-04-02 to 2023-01-31, Duration: 4.8 years.

[CG20] Taylor T. Johnson (Co-PI), with Xenofon Koutsoukos (PI), Janos Sztipanovits (Vanderbilt/EECS), Gabor Karsai (Vanderbilt/EECS), Aniruddha Gokhale (Vanderbilt/EECS), Yevgeniy Vorobeychik (Vanderbilt/EECS), Abhishek Dubey (Vanderbilt/EECS), Maithilee Kunda (Vanderbilt/EECS), Peter Volgyesi (Vanderbilt/EECS), Jennifer Trueblood (Vanderbilt/Psychology), S. Shankar Sastry (Berkeley/EECS), Claire Tomlin (Berkeley/EECS), Anthony Joseph (Berkeley/EECS), Saurabh Amin (MIT/CEE), Nazli Choucri (MIT/Political Science), Alvaro Cardenas (UT Dallas/CS), Bhavani Thuraisingham (UT Dallas/CS), "Science of Security for Cyber-Physical Systems Lablet," Science of Security Lablet (SoSL), Department of Defense (DoD), Award Amount: $14,750,000, 2017-09-01 to 2022-08-31, Award Number: H98230-18-D-0010, Duration: 5.0 years.

[CG19] Taylor T. Johnson (PI), with Joel Rosenfeld (Co-PI), "FMitF: Track II: Hybrid and Dynamical Systems Verification on the CPS-VO," Formal Methods in the Field (FMitF), Directorate for Computer and Information Science and Engineering (CISE:FMitF), National Science Foundation (NSF), Award Amount: $98,311, 2019-10-01 to 2021-03-30, Duration: 1.5 years.

[CG18] Taylor T. Johnson (Co-PI), with Ali Davoudi (PI, UT-Arlington), "Scalable Formal Verification of Resilient Converter-dominated MVDC Networks," Sea and Warfare Weapons (Code 33), Office of Naval Research (ONR), Award Amount: $640,000, 2018-03-01 to 2021-02-28, Award Number: N00014-18-1-2184, Duration: 3.0 years.

[CG17] Taylor T. Johnson (PI (Sole)), "Understandable and Reusable Formal Verification for Cyber-Physical Systems," Young Investigator Research Program (YIP), Air Force Office of Scientific Research (AFOSR), Award Amount: $437,469, 2018-02-01 to 2021-01-31, Award Number: FA9550-18-1-0122, Duration: 3.0 years. Due to contractual issues, I had to re-apply and compete for the AFOSR YIP again, which previously was awarded at UT-Arlington [CG9].

[CG16] Taylor T. Johnson (PI (Sole)), "Hyperproperties for Generative AI Models," Artificial Intelligence Hardware (AIHW), Semiconductor Research Corporation (SRC), Award Amount: $240,000, 2021-01-01 to 2023-12-31, Duration: 3.0 years. Recommended for award, but declined by Vanderbilt due to intellectual property (IP) contractual concerns.

[CG15] Taylor T. Johnson (PI), with Christoph Csallner (Co-PI), "SHF: Small: Automating Improvement of Development Environments for Cyber-Physical Systems (AIDE-CPS)," Software and Hardware Foundations, Division of Computing and Communication Foundations, Directorate for Computer and Information Science and Engineering (CISE:CCF:SHF), National Science Foundation (NSF), Award Amount: $498,437, 2015-09-01 to 2019-08-31, Award Number: 1736323, 1527398, Duration: 4.0 years.

[CG14] Taylor T. Johnson (Co-PI), with Ali Davoudi (PI), David Levine (Senior Personnel), "Real-time Ab Initio Modeling of Electric Machines," Energy, Power, Control, and Networks Program, Division of Electrical, Communications and Cyber Systems, Directorate for Engineering (ENG:ECCS:EPCN), National Science Foundation (NSF), Award Amount: $285,000, 2015-08-01 to 2021-07-31, Award Number: 1509804, Duration: 6.0 years.

[CG13] Taylor T. Johnson (Co-PI), with Christoph Csallner (PI), "Equivalence Modulo Input (EMI)-Based Validation of CPS Tool Chains," Development Collaboration Research Grant (DCRG), The MathWorks (MathWorks), Award Amount: $32,000, 2018-09-01 to 2019-08-31, Duration: 1.0 years.

[CG12] Taylor T. Johnson (PI (Sole)), "Cyber-Physical Systems Specification Mismatch and Safe Upgrades," Systems and Software Program (SS), Air Force Office of Scientific Research (AFOSR), Award Amount: $397,806, 2015-08-15 to 2018-08-14, Award Number: FA9550-15-1-0258, Duration: 3.0 years.

[CG11] Taylor T. Johnson (PI (Sole)), "CRII: CPS: Safe Cyber-Physical Systems Upgrades," CISE Research Initiation Initiative, Cyber-Physical Systems Program, Division of Computer and Network Systems, Directorate for Computer and Information Science and Engineering (CISE:CNS:CRII:CPS), National Science Foundation (NSF), Award Amount: $174,634, 2015-06-15 to 2017-06-14, Award Number: 1713253, 1464311, Duration: 2.0 years.

[CG10] Taylor T. Johnson (PI), with Gautam Biswas (Co-PI), Clare McCabe (Co-PI), Julie Johnson (Co-PI), "Improving Participation of Female Computer Science Majors and Professionals through Digital Learning with Groups of Mobile Robots Controlled by Android Apps," MacroGrant, Vanderbilt Institute for Digital Learning (VIDL), Award Amount: $10,000, 2017-07-01 to 2018-06-30, Duration: 1.0 years.

[CG9] Taylor T. Johnson (PI (Sole)), "Reusable Formal Verification for Cyber-Physical Systems," Young Investigator Research Program (YIP), Air Force Office of Scientific Research (AFOSR), Award Amount: $357,564, 2016-08-01 to 2019-07-31, Award Number: FA9550-16-1-0246, Duration: 3.0 years.

[CG8] Taylor T. Johnson (Co-PI), with Ali Davoudi (PI, UT-Arlington), Frank Lewis (Co-PI, UT-Arlington), Hamidreza Modares (Co-PI, UT-Arlington), "Testbed Acquisition for Resilient Self-Organizing Microgrids," Defense University Research Instrumentation Program (DURIP), Office of Naval Research (ONR), Award Amount: $220,000, 2016-09-15 to 2017-09-14, Award Number: N00014-16-1-3180, Duration: 1.0 years.

[CG7] Taylor T. Johnson (Co-PI), with Ali Davoudi (PI, UT-Arlington), Frank Lewis (Co-PI, UT-Arlington), Hamidreza Modares (Co-PI, UT-Arlington), "Realizing Resilient Self-Organizing Microgrids," Department of Defense (DoD) Research and Education Program for Historically Black Colleges and Universities and Minority-Serving Institutions (HBCU/MI) (REP:HBCU/MSI), Army Research Office (ARO), Award Amount: $300,000, 2016-09-15 to 2017-09-14, Award Number: W911NF-16-1-0534, Duration: 1.0 years.

[CG6] Taylor T. Johnson (PI (Sole)), "Safely and Securely Controlling Large Swarms of Unmanned Aerial Vehicles (UAVs) with the STAbilizing Robot Language (StarL)," Summer of Innovation (SoI), Air Force Research Laboratory (AFRL), Award Amount: $90,000, 2017-05-01 to 2017-08-31, Award Number: FA8650-12-3-7255, Duration: 0.3 years.

[CG5] Taylor T. Johnson (PI (Sole)), "Formal Modeling of Emergence in Distributed Cyber-Physical Systems," Trusted Autonomy and Verification and Validation (VV), Integrated Command and Control (TAVV), Air Force Research Laboratory (AFRL), Award Amount: $499,546, 2015-04-16 to 2017-04-15, Award Number: FA8750-15-1-0105, Duration: 2.0 years.

[CG4] Taylor T. Johnson (Co-PI), with Stephen Mattingly (PI), Colleen Casey (Co-PI), "App-Based Crowd Sourcing of Bicycle and Pedestrian Conflict Data," University Transportation Center for Livable Communities (TRCLC), United States Department of Transportation (USDOT), Award Amount: $120,001, 2015-08-01 to 2016-07-31, Award Number: DTRT13-G-UTC60, Duration: 1.0 years.

[CG3] Taylor T. Johnson (PI (Sole)), "Detecting and Mitigating Cyber-Physical Attacks with Invariant Inference and Runtime Assurance," Summer Faculty Fellowship Program (SFFP), Air Force Office of Scientific Research (AFOSR), Award Amount: $43,575, 2015-05-18 to 2015-07-31, Duration: 0.2 years.

[CG2] Taylor T. Johnson (PI), with Ali Davoudi (Co-PI), David Levine (Senior Personnel), "Real-time Ab Initio Modeling of Electric Machines," Hardware Donation Program (HDP), NVIDIA (NVIDIA), Award Amount: $4,000, 2014-11-12 to 2014-11-12.

[CG1] Taylor T. Johnson (PI (Sole)), "Inferring Physical System Specifications from Embedded Software Tests," Visiting Faculty Research Program (VFRP), Air Force Research Laboratory (AFRL), Award Amount: $27,980, 2014-05-19 to 2014-08-08, Award Number: FA8750-13-2-0115, Duration: 0.2 years.

CONFERENCE AND OTHER TRAVEL GRANTS

August 2017 **Southeastern Conference (SEC) Faculty Travel Program Award**.

May 2017 **CPS Verification and Validation: Industrial Challenges and Foundations Workshop (CPS V&V I&F Workshop 2017), Carnegie Mellon University (NSF)**.

March 2015 **NSF CISE CAREER Workshop 2015 (NSF)**.

December 2014 **CPS Verification and Validation: Industrial Challenges and Foundations Workshop (CPS V&V I&F Workshop 2014), Carnegie Mellon University (NSF)**.

December 2012 **IEEE Real-Time Systems Symposium (RTSS), (University of Illinois at Urbana-Champaign Graduate College and NSF)**.

December 2011 **IEEE Conference on Decision and Control (CDC) (University of Illinois at Urbana-Champaign Graduate College and Rockwell Collins)**.

September 2010 **International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS) (NSF)**.

December 2009 **IEEE Real-Time Systems Symposium (RTSS) (NSF)**.

April 2009 **IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) (NSF)**.

OUTREACH

INTERVIEWS

2025 **Research Interview, "The Role of AI in U.S. Public Policy and Crisis Decision-Making"**.

- Interviewed by Drew Slaton, Doctor of Business Administration student, Columbia Southern University.

COMMUNITY OUTREACH

2014 – Present **Rice Alumni Volunteers for Admission (RAVA)**.

- Interviewed prospective Rice University undergraduate students in-person and via teleconference (around 5 annually), and presented during high school college fairs.

2012 – Present **StackExchange and StackOverflow Contributor**.

- Answered over fifty questions related to computer science and programming.
- Contributed extensively to Microsoft Research's Z3 satisfiability modulo theories (SMT) solver questions, and ranked as the top user not employed by Microsoft.

2017 – 2018 **MNPS K-12 Computer Science Curriculum Development**.

- Developed a mobile phone for computer science curriculum and demonstrations using the Raspberry Pi in conjunction with Chaz Carothers, M.Ed., Encore K-4 Teacher in Metro Nashville Public Schools (MNPS), Advanced Academics Resource Teacher (AART), Henry C. Maxwell Elementary School.

2014 – 2016 **Judge**.

- January 2016: Congressional STEM Competition Mobile App Contest Judge, El Centro College, Dallas County Community College District, Dallas, TX, sponsored by US Congressman Marc Veasey (`http://www.house.gov/content/educate/app_challenge/`).
- May 2014: Congressional STEM Competition Mobile App Contest Judge, El Centro College West Campus, Dallas County Community College District, Dallas, TX, sponsored by US Congressman Marc Veasey (`http://www.house.gov/content/educate/app_challenge/`).
- 2014-2015: Computer Science Area Judge, Fort Worth Regional Science and Engineering Fair, University of Texas at Arlington, Arlington, TX.

2012 **Demonstrator, Engineering Open House**, *University of Illinois at Urbana-Champaign*, Urbana, IL.

- Spring 2012: Adam Zimmerman, Matt Johnson, ***Taylor T. Johnson***, and Sayan Mitra. Demonstration: Drawing Pictures with Mobile Robots. [video]

2007 – 2008 **Mentor for High School Students, DREAM Program**, *Rice University*, Houston, TX.

- Mentored several underrepresented high school students on science and engineering fair projects.

PROFESSIONAL ACTIVITIES AND SERVICE

INVITED WORKSHOPS AND PROFESSIONAL DEVELOPMENT

November 9–13, 2026 **Selected participant (upcoming)**, *Liftoff Founders Week*, London, UK.
AI safety venture development focused on verified physical AI and formal assurance for safety- and security-critical systems. Organized by Pivotal Research, the London Initiative for Safe AI (LISA), and the UK AI Forum; supported by Coefficient Giving and aligned with Project Tailwind.

October 11–16, 2026 **Invited participant and research speaker**, *Dagstuhl Seminar 26421: Advancing Testability and Verifiability of CPS with Neurosymbolic and Large Language Models*, Schloss Dagstuhl, Wadern, Germany.
Research talk: Let's verify vision-language-action models: why and how could we get there?

March 9–12, 2026 **Invited participant and research speaker**, *NII Shonan Meeting 235: LLM-guided Synthesis, Verification, and Testing of Learning-Enabled CPS*, Shonan Village Center, Kanagawa, Japan.
Contributed to discussions on foundation-model verification and agentic engineering.

September 21–26, 2025 **Invited participant and research speaker**, *Dagstuhl Seminar 25392: Specification Engineering: Foundations for the Future of Software Development*, Schloss Dagstuhl, Wadern, Germany.

February 20–21, 2025 **Participant**, *Computing Research Association (CRA) Leadership Academy*, Washington, DC, USA.
Academic leadership development for computing research faculty.

February 11–16, 2024 **Invited participant and working group lead**, *Dagstuhl Seminar 24071: Safety Assurance for Autonomous Mobility*, Schloss Dagstuhl, Wadern, Germany.
Led the working group on low-level control techniques for safety assurance.

SELECTED CO-AUTHORED PRESENTATIONS

December 1, 2026 **Accepted co-authored contribution (upcoming)**, *ATVA 2026 Spotlights of Verification*, Hong Kong, China.
Reachability-Based Formal Verification of Graph Neural Networks with Node and Edge Features. Scheduled presenter: Anne M. Tumlin. Based on the SAIV 2026 paper; the spotlight does not publish proceedings.

PROFESSIONAL LICENSURE

2019 – Present **Professional Engineer (PE), License Number 122259**, *Tennessee Board of Architectural and Engineer Examiners*, Passed the National Council of Examiners for Engineering and Surveying (NCEES) PE exam (Software Engineering) in April 2019, fully licensed since June 2019.

2018 – 2019 **Engineer-in-Training (EiT) / Engineer Intern, License Number 33711**, *Tennessee Board of Architectural and Engineer Examiners*.

PROFESSIONAL ORGANIZATIONS

2019 – Present **Member**, *Association for the Advancement of Artificial Intelligence (AAAI)*.

2018 – Present **Member**, *National Society of Professional Engineers (NSPE)*.

2016 – Present **Member**, *American Association for the Advancement of Science (AAAS)*.

2015 – Present **Member**, *Society of Automotive Engineers (SAE International)*.

2014 – Present **Member**, *American Institute of Aeronautics and Astronautics (AIAA)*.

2005 – Present **Member**, *Institute of Electrical and Electronics Engineers (IEEE)*.

2003 – Present **Member**, *Association for Computing Machinery (ACM)*.

UNIVERSITY SERVICE

2021 – Present **Vanderbilt University, Graduate Faculty Council**.
Elected member advising the Graduate School from the School of Engineering. Participated as a panelist in Graduate Student Orientation

2017 – Present **Vanderbilt University, Ingram Commons, Vanderbilt Visions / VUcept, Faculty VUceptor for a cohort of $17-20$ first-year undergraduates**, *Fall 2025, Fall 2024, Fall 2023, Fall 2022, Fall 2021, Fall 2020, Fall 2019, Fall 2018, Fall 2017*.

2021 – 2024 **Vanderbilt University, Graduate Faculty Council, Executive Committee**.
Invited member of executive committee advising the Graduate School from the School of Engineering

2021 – 2022 **Vanderbilt University, Graduate School Search Committee**.
Search committee member for Associate Dean for Academic Affairs of the Graduate School

2020 **Vanderbilt University, Online Course Design Institute (OCDI), Center for Teaching**.
Participated in an online course design institute to better prepare for online and blended online-and-in-person teaching

2019 **Vanderbilt University, Ingram Commons, Vanderbilt Visions / VUcept, Student VUceptor Interviewer**.
Interviewed six prospective student VUceptor candidates for the 2019-2020 academic year

2018 – 2019 **Vanderbilt University, Ingram Commons, Vanderbilt Visions / VUcept, Commons Reading Selection Committee**.
Evaluated five potential Commons reading book prospects and made recommendations for the 2019 Commons reading

2017 – 2019 **Vanderbilt University, VU Women in Science and Engineering and VU Center for Integration of Research, Teaching, and Learning (VU-WiSE and VU-CIRTL) Tiered Mentorship Program (TMP)**, *Participated as a faculty mentor*, 2018-2019, 2017-2018.

COLLEGE/SCHOOL AND DEPARTMENTAL SERVICE

2024 – Present **Vanderbilt University, Computer Science Faculty Search Committee Member**.

2024 – Present **Vanderbilt University, College of Connected Computing (CCC), Faculty Advisory Committee**.
Provide feedback and guidance for formation of College of Connected Computing (CCC)

2025 – Present **Vanderbilt University, College of Connected Computing, Associate Dean for Graduate Education and Postdoctoral Affairs**.
Provide leadership for graduate education and postdoctoral affairs across the College of Connected Computing (CCC)

2024 – 2025 **Vanderbilt University, School of Engineering, Associate Chair for Computer Science**.
Provided strategic guidance for department, handled duties of chair when in absentia

2023 – Present **Vanderbilt University, School of Engineering, Director of Graduate Studies (DGS) for Computer Science PhD Program**.
Responsible for all aspects of the computer science PhD degree, covering recruitment, advising, program progression, staff/Graduate Program Coordinator (GPC) staff hiring and management, funding and budget management (teaching assistantship assignments, etc., totaling about $\$2.5$ million annually), etc. for over 150 PhD students

2021 – Present **Vanderbilt University, School of Engineering, Director for Master of Engineering (MEng) in Cyber-Physical Systems (CPS)**.
Responsible for all aspects of this professional graduate degree, covering recruitment, advising, program progression (serving as the Director of Graduate Studies [DGS] for the program), marketing, etc

2021 – Present **Vanderbilt University, School of Engineering, Digital Fabrication Minor, CS Faculty Delegate**.
Provided feedback on CS courses to be included in digital fabrication minor

2021 – 2023 **Vanderbilt University, Electrical Eng. and Computer Science, Destination CS / Destination Vanderbilt Faculty Search Committee Member**.

2017 – 2023 **Vanderbilt University, Electrical Eng. and Computer Science, Academic Advisor for a cohort of 35 undergraduates in Computer Science (CS) and Computer Engineering (CmpE) for the classes of 2021 and 2025**.

2017 – 2022 **Vanderbilt University, Electrical Eng. and Computer Science, WithIT Computer Science Seminar Organizer**.

2019 – 2022 **Vanderbilt University, Electrical Eng. and Computer Science, Adviser for Student Team in two F1/10 Autonomous Racecar Competitions held at events such as the Cyber-Physical Systems and Internet-of-Things Week (CPS-IoT Week) 2019 and Embedded Systems Week (ESWeek) 2019 and IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2021**.

2018 – 2021 **Vanderbilt University, Electrical Eng. and Computer Science, Director of Graduate Recruiting (DGR), Computer Science**.

Helped ACM-W/Women-in-Computing raise funds totaling around $12.5k for Vanderbilt to serve as a platinum sponsor and for Vanderbilt CS students to attend the Grace Hopper Celebration of Women in Computing in 2019, and again for around a dozen and a half Vanderbilt CS students to attend the 2020 virtual edition. In total, around three dozen Vanderbilt CS students attended through our sponsorship efforts, and myself as CS DGR to help with CS graduate recruiting.

2018 – 2019 **Vanderbilt University, Electrical Eng. and Computer Science, Digital Systems (EECE2123) Revision Committee**.

Committee to determine future plans for digital systems introduction to computer systems and engineering across the CS and ECE departments, with recommendation to create a new required Computer Architecture course in CS and cross-list with ECE.

2018 – 2020 **Vanderbilt University, Electrical Eng. and Computer Science, Adviser for Student Team in 2018, 2019, and 2020 NSF Cyber-Physical Systems (CPS) Challenges**.

2019 **Vanderbilt University, School of Engineering, Profs in the House, Spoke with about 40 first year students about their transition to Vanderbilt**.

2019 **Vanderbilt University, Data Science Institute (DSI), Electrical Eng. and Computer Science, Postdoctoral Fellow Selection Committee**.

2018 **Vanderbilt University, VandyHacks, Electrical Eng. and Computer Science, Judge for Award Selection**.

2016 – Present **Vanderbilt University, Accreditation Board for Engineering and Technology (ABET) Accreditation, Computer Science (CS) and Computer Engineering (CmpE) evaluation development**.

2018 – 2019 **Vanderbilt University, Electrical Eng. and Computer Science, Digital Systems (EECE2123) Curriculum Creation Committee**.

Primary contributor to make a core undergraduate curriculum change for our Computer Science (CS), Computer Engineering (CmpE), and Electrical Engineering (EE) degrees, eliminating two required undergraduate courses (Computer Organization (CS2231) and Digital Logic (EECE2116)) and creating one new required undergraduate course (Digital Systems (EECE2123)), then teaching the first iteration of EECE2123 in fall 2019.

2016 – 2018 **Vanderbilt University, Graduate Faculty Delegate Assembly (GFDA), Computer Science Representative**.

2015 – 2016 **College of Engineering, University of Texas at Arlington, Service and Committees**.

- 2015-2016: Engineering Freshman Interest Group (FIG) Mentor.

2013 – 2016 **Department of Computer Science and Eng., University of Texas at Arlington, Committees**.

- 2015 – 2016: Computer Science and Eng. Faculty Search for Three Tenure-Track Positions, Search Committee.
- 2015 – 2016: Computer Science and Eng. CSE2100: Practical Computer Hardware/Software Systems, Curriculum Committee.
- 2013 – 2016: Computer Science and Eng., Computer Engineering Curriculum Committee.
- 2013 – 2016: Computer Science and Eng. PhD Admissions Committee.
- 2013 – 2016: Computer Science and Eng. Graduate Studies Committee (GSC).
- 2013 – 2016: Computer Science and Eng. Colloquium: invited speakers for over eight invited talks.

2010–2013 **Electrical and Computer Engineering, University of Illinois at Urbana-Champaign**.

- 2010–2013: Incoming Graduate Student Orientation Program Volunteer and Panelist.

2013 – Present **Doctoral Dissertation Committee Membership**.

- 2026: Christopher Brix, Department of Computer Science, RWTH Aachen University. Adviser: Joost-Pieter Katoen. Role: External examiner and thesis reviewer.
- 2025: Ramesh Krishnamurthy, "Formal Analysis Tools for Nonlinear Model-Predictive Control", Department of Computer Science, University of Antwerp. Advisers: Guillermo A. Pérez & Joachim Denil. Role: External examiner.
- 2025: Guanqin Zhang, "Order-Leading Branch and Bound for Neural Network Verification", Faculty of

Engineering, University of New South Wales (UNSW). Advisers: Yulei Sui, Dilum Bandara & Shiping Chen. Role: External examiner.
- 2024: Abdelrahman Waleed Elsayed Aly Hekal, "Safety of Cyber-Physical Systems: Verification, Falsification, and Adversarial Attacks", Computer Science, Newcastle University. Advisers: Sergiy Bogomolov and Sadegh Soudjani. Role: External examiner.
- 2023 – 2024: Nham Le, "Verifying Neural Networks Explanation", Electrical and Computer Engineering, University of Waterloo. Adviser: Arie Gurfinkel. Role: External examiner and committee member.
- 2023: Colin Bloomfield, "Fibered Universal Algebra for First-order Logics", Department of Mathematics, Vanderbilt University. Role: Committee member.
- 2022 – 2023: Florian Jaeckle, "Towards Robust Machine Learning with Graph Neural Network", Engineering Science, Oxford University. Advisers: Philip Torr and M. Pawan Kumar. Internal Examiner: Victor A. Prisacariu. Role: External examiner.
- 2022: Bogdan Chornomaz, "The Sauer-Shelah-Perles Inequality and Relatively Complemented Lattices: The SSP=RC Conjecture", Department of Mathematics, Vanderbilt University. Role: Committee member.
- 2021 – 2022: Dario Guidotti, "Verification and Repair of Machine Learning Models", Computer Science and Systems Engineering, University of Genova. Adviser: Armando Tacchella. Role: External examiner and committee member.
- 2020 – 2021: Niveditha Manjunath, "Fault-Based Analysis of Cyber-Physical Systems", Informatics, Technical University of Vienna (TU Wien). Adviser: Ezio Bartocci. Role: Reviewer and External Committee Member.
- 2017 – 2020: Ritwika Ghosh, "Separation of distributed coordination and control for programming reliable robotics", Computer Science, University of Illinois at Urbana-Champaign. Adviser: Sayan Mitra. Role: External Committee Member.
- 2016 – 2019: Fardin Abdi, "Safety and security of cyber-physical systems", Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. Adviser: Marco Caccamo. Role: External Committee Member.
- 2015 – 2016: John Podolanko, Computer Science and Eng., University of Texas at Arlington. Adviser: Matthew Wright.
- 2014 – 2016: Brian Cook, Computer Science and Eng., University of Texas at Arlington. Adviser: Manfred Huber.
- 2014 – 2016: Nicholas Brent Burns, Computer Science and Eng., University of Texas at Arlington. Adviser: Gergely Zaruba.
- 2014 – 2015: Seyedali Moayedi, Electrical Engineering, University of Texas at Arlington. Adviser: Ali Davoudi.
- 2014 – 2015: Vahidreza Nasirian, Electrical Engineering, University of Texas at Arlington. Adviser: Ali Davoudi.
- 2013 – 2016: Minh Nguyen, Computer Science and Eng., University of Texas at Arlington. Adviser: Hao Che.

2013 – Present **Doctoral Preliminary Exam Committee Membership**.
Served on dozens of preliminary exam committees

REVIEWING AND SCHOLARLY COMMUNITY SERVICE

RESEARCH PROPOSAL REVIEWING

NSF **National Science Foundation (NSF), CISE Review Panels**, *2015, 2016, 2017, 2018, 2019, 2020, 2022, 2023 (3), 2024, 2025*.

ISF **Israel Science Foundation**, *2024*.

EU **European Union EUTOPIA Science and Innovation Fellowships (SIF) Programme**, *2024*.

ANR **Agence Nationale de la Recherche**, *2023, 2025*.

NDSEG **Department of Defense National Defense Science and Engineering Graduate Fellowship Program (NDSEG)**, *2021*.

SMART **Science, Mathematics And Research for Transformation (SMART) Scholarship for Service Program, Department of Defense (DoD), Reviewer**, *2016, 2018, 2019, 2020*.

NSF-EPSCoR **National Science Foundation (NSF), Ad Hoc Reviewer**, *2020*.

NSF-GRFP **National Science Foundation (NSF), Graduate Research Fellowship Program (GRFP) Panel**, *2020*.

Mitacs **Mitacs Canada Accelerate Program, External Reviewer**, *2017, 2019, 2024*.

Nebraska **University of Nebraska, Faculty Grants System Science Request for Applications**, *2018*.

NSERC **Natural Sciences and Engineering Research Council of Canada (NSERC), External Reviewer**, *2017, 2018*.

AFOSR **Air Force Office of Scientific Research (AFOSR), External Reviewer**, *2015, 2016*.

ORAU **Oak Ridge Associated Universities (ORAU), NASA Postdoctoral Program (NPP)**, *2014*.

RESEARCH REVIEWING AND ORGANIZATIONAL SERVICE

2009 – Present **Reviewing Service Overview and Verified Web of Science Reviewer Record**.
My reviewing service for journals and conferences is verified through Web of Science (formerly Publons), and a summary may be seen below with details at: `https://www.webofscience.com/wos/author/rid/E-8862-2015`.

JOURNAL EDITORSHIP

NAHS **International Federation of Automatic Control (IFAC) Nonlinear Analysis: Hybrid Systems (NAHS)**, *2024-on*, Guest Associate Editor.

AMAI **Springer Annals of Mathematics and Artificial Intelligence (AMAI)**, *2024-on*, Associate Editor.

STTT **Springer International Journal on Software Tools for Technology Transfer (STTT)**, *2022-on*, Associate Editor.

IET-CTA **IET Control Theory & Applications, Guest Editor for Special Issue on Recent Advances in Control and Verification for Hybrid Systems**, *2018-2019*.

CONFERENCE/WORKSHOP STEERING COMMITTEE MEMBERSHIP

SAIV **Symposium on Artificial Intelligence (AI) Verification (SAIV), Steering Committee Member**, *2023-present*.

DHS **Methods and Tools for Distributed Hybrid Systems (DHS), Steering Committee Member**, *2019-present*.

SNR **International Workshop on Symbolic-Numeric Methods for Reasoning about CPS and IoT (SNR), Steering Committee Member**, *2018-present*.

TECHNICAL PROGRAM COMMITTEE MEMBERSHIP

FormaliSE'27 **15th International Conference on Formal Methods in Software Engineering (FormaliSE 2027), Technical Program Committee, Dublin, Ireland, April 26–27, 2027**.

ICLR'27 **15th International Conference on Learning Representations (ICLR 2027), Program Committee (Reviewer), California, USA, April 26–30, 2027**.

TACAS'27 **33rd International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2027), Technical Program Committee, Copenhagen, Denmark, April 2027**.

VMCAI'27 **28th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2027), Technical Program Committee, Mexico City, Mexico, January 11–12, 2027**.

ARR'26 **ACL Rolling Review (ARR), shared reviewing platform for ACL and EMNLP, Program Committee (Reviewer), 2026**.

GAIRS'26 **RTSS 2026 Hot Topics Day Workshop on Generative AI for Real-Time Scheduling Research (GAIRS), Technical Program Committee, Yokohama, Japan, December 8, 2026**.

RTSS'26 **47th IEEE Real-Time Systems Symposium (RTSS 2026), Technical Program Committee, Yokohama, Japan, December 2026**.

NeurIPS'26 **40th Annual Conference on Neural Information Processing Systems (NeurIPS 2026), Technical Program Committee, Sydney, Australia, December 2026**.

FMAS'26 **International Workshop on Formal Methods for Autonomous Systems (FMAS 2026), Technical Program Committee, Southampton, United Kingdom, November 2026**.

EMSOFT'26 **26th ACM International Conference on Embedded Software (EMSOFT 2026), Technical Program Committee, Barcelona, Spain, October 2026**.

QEST-FORMATS'26 **3rd Joint Conference of the 23rd International Conference on Quantitative Evaluation of SysTems (QEST) and 24th International Conference on Formal Modeling and Analysis of Timed Systems (QEST-FORMATS 2026), Technical Program Committee, Liverpool, United Kingdom, September 2026**.

NeuS'26 **3rd International Conference on Neuro-Symbolic Systems (NeuS 2026), Technical Program Committee, Los Angeles, CA, June 2026**.

ERAS'26 **2026 IEEE RAS International Conference on Engineering Reliable Autonomous Systems (ERAS 2026), Technical Program Committee, Zagreb, Croatia, May 2026**.

HSCC/ICCPS'26 **29th ACM International Conference on Hybrid Systems: Computation and Control / 17th ACM/IEEE International Conference on Cyber-Physical Systems (HSCC/ICCPS 2026), Unified Program Committee, CPS-IoT Week 2026, May 2026**.

ISAIM'26 **19th International Symposium on Artificial Intelligence and Mathematics (ISAIM 2026), Program Committee, Fort Lauderdale, FL, January 2026**.

AAAI'26 **40th AAAI Conference on Artificial Intelligence (AAAI 2026), Senior Program Committee, Singapore, January 2026**.

NeurIPS'25 **39th Annual Conference on Neural Information Processing Systems (NeurIPS 2025), Technical Program Committee, California, December 2025**.

FMAS'25 **International Workshop on Formal Methods for Autonomous Systems (FMAS 2025), Technical Program Committee, Paris, France, November 2025**.

ICCV'25 **IEEE International Conference on Computer Vision (ICCV 2025), Technical Program Committee, Hawaii, October 2025**.

EMSOFT'25 **25th ACM International Conference on Embedded Software (EMSOFT 2025), Technical Program Committee, Taiwan**.

IJCAI'25 **34th International Joint Conference on Artificial Intelligence (IJCAI 2025), Technical Program Committee, Montreal, Canada, August 2025**.

QEST-FORMATS'25 **2nd Joint Conference of the 22nd International Conference on Quantitative Evaluation of SysTems (QEST) and 23rd International Conference on Formal Modeling and Analysis of Timed Systems (QEST-FORMATS 2025), Technical Program Committee, Denmark, August 2025**.

SAIV'25 **2nd International Symposium on AI Verification (SAIV 2025), Technical Program Committee, Croatia, July 2025**.

FTfJP'25 **27th International Workshop on Formal Techniques for Judicious Programming (FTfJP'25), Technical Program Committee, Norway, July 2025**.

SMC-IT/SCC'25 **IEEE International Conference on Space Mission Challenges for Information Technology (SMC-IT) and Space Computing Conference (SCC) (SMC-IT/SCC'25), Technical Program Committee, CA**.

ICCPS'25 **16th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2025), Technical Program Committee, California**.

HotSoS'25 **Hot Topics in the Science of Security 2025 (HotSoS 2025), Technical Program Committee, Virtual**.

TACAS'25 **31st International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2025), External Reviewer, Hamilton, Canada, April 2025**.

MLforSystems'24 **Workshop on Machine Learning (ML) for Systems, Technical Program Committee**.

FMAS'24 **Formal Methods for Autonomous Systems Workshop (FMAS'24), Technical Program Committee, England**.

EMSOFT'24 **24th ACM International Conference on Embedded Software (EMSOFT 2024), Technical Program Committee, USA**.

QEST-FORMATS'24 **1st Joint Conference of the 21st International Conference on Quantitative Evaluation of SysTems (QEST) and 22nd International Conference on Formal Modeling and Analysis of Timed Systems (QEST-FORMATS 2024), Technical Program Committee, Canada, September 2024**.

SMC-IT/SCC'24 **IEEE International Conference on Space Mission Challenges for Information Technology (SMC-IT) and Space Computing Conference (SCC) (SMC-IT/SCC'24), Technical Program Committee, CA**.

ADHS'24 **8th IFAC Conference Analysis and Design of Hybrid Systems (ADHS 2024), Technical Program Committee, Colorado**.

HSCC'24 **27th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2024), Technical Program Committee, Hong Kong**.

ICCPS'24 **15th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2024), Technical Program Committee, Hong Kong**.

NFM'24 **16th NASA Formal Methods Symposium (NFM 2024), Technical Program Committee, California**.

AAAI'24 **38th AAAI Conference on Artificial Intelligence (AAAI 2024), Senior Program Committee, February 2024**.

FMAS'23 **Formal Methods for Autonomous Systems Workshop (FMAS'23), Technical Program Committee, Netherlands**.

EMSOFT'23 **23rd ACM International Conference on Embedded Software (EMSOFT 2023), Technical Program Committee, Germany**.

FORMATS'23 **21st International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS 2023), Technical Program Committee, September 2023**.

WFVML'23 **2nd Workshop on Formal Verification of Machine Learning (WFVML 2023), Technical Program Committee, Hawaii, July 2023**.

SMC-IT/SCC'23 **IEEE International Conference on Space Mission Challenges for Information Technology (SMC-IT) and Space Computing Conference (SCC) (SMC-IT/SCC'23), Technical Program Committee, CA**.

HSCC'23 **26th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2023), Technical Program Committee**.

ICCPS'23 **14th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2023), Technical Program Committee**.

SPIN'23 **29th International Symposium on Model Checking of Software (SPIN 2023), Technical Program Committee, April 2023**.

AAAI'23 **37th AAAI Conference on Artificial Intelligence (AAAI 2023), Senior Program Committee, February 2023**.

FMAS'22 **Formal Methods for Autonomous Systems Workshop (FMAS'22), Technical Program Committee, Germany**.

FORMATS'22 **20th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS 2022), Technical Program Committee, September 2022**.

NSV'22 **15th International Workshop on Numerical Software Verification (NSV'22), Technical Program Committee, Israel, August 2022**.

CAV'22 **34th International Conference on Computer Aided Verification (CAV 2022), Technical Program Committee, August 2022**.

CVPR'22 **IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2022), Technical Program Committee, June 2022**.

HSCC'22 **25th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2022), Technical Program Committee**.

ICCPS'22 **13th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2022), Technical Program Committee**.

AAAI'22 **36th AAAI Conference on Artificial Intelligence (AAAI 2022), Technical Program Committee, February 2022**.

ICCV'21 **IEEE International Conference on Computer Vision (ICCV 2021), Technical Program Committee, October 2021**.

FMAS'21 **Formal Methods for Autonomous Systems Workshop (FMAS'21), Technical Program Committee, Virtual**.

SNR'21 **7th International Workshop on Symbolic-Numeric Methods for Reasoning about CPS and IoT (SNR 2021), Technical Program Committee, August 2021**.

ADHS'21 **7th IFAC Conference Analysis and Design of Hybrid Systems (ADHS 2021), Technical Program Committee**.

CVPR'21 **IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2021), Technical Program Committee, June 2021**.

AAAI'21 **35th AAAI Conference on Artificial Intelligence (AAAI 2021), Technical Program Committee, February 2021**.

FMAS'20 **Formal Methods for Autonomous Systems Workshop (FMAS'20), Technical Program Committee, Virtual**.

SNR'20 **6th International Workshop on Symbolic-Numeric Methods for Reasoning about CPS and IoT (SNR 2020), Technical Program Committee**.

NFM'20 **12th NASA Formal Methods Symposium (NFM 2020), Technical Program Committee**.

HSCC'20 **23rd ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2020), Technical Program Committee**.

ICCPS'20 **11th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2020), Technical Program Committee**.

FMAS'19 **Formal Methods for Autonomous Systems Workshop (FMAS'19), Technical Program Committee, Portugal**.

GHC'19 **Anita Borg Institute Grace Hopper Celebration (GHC'19), Session Chair and Poster Session Technical Program Committee, FL**.

F4TDAS'19 **1st International Workshop on Formal Techniques for Dependable Autonomous Systems (F4TDAS'19), Technical Program Committee, Finland**.

FoMLAS'19 **2nd Workshop on Formal Methods for ML-Enabled Autonomous Systems (FoMLAS'19), Technical Program Committee, NY**.

ISORC'19 **22nd IEEE International Symposium on Real-Time Distributed Computing (ISORC'19), Technical Program Committee, Spain**.

ICCPS'19 **10th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2019), Technical Program Committee**.

ICCPS-WiP'19 **10th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2019), Technical Program Committee**.

HSCC'19 **22nd ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2019), Technical Program Committee**.

SNR'19 **5th International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR 2019), Technical Program Committee, Montreal**.

CPS-SR'19 **2nd Workshop on Cyber-Physical Systems Security and Resilience (CPS-SR 2019), Technical Program Committee, Canada, April 2019**.

RTSS-AE'18 **39th IEEE Real-Time Systems Symposium (RTSS), Artifact Evaluation Committee, TN**.

TREC4CPS'18 **1st International Workshop on Trustworthy and Real-time Edge Computing for Cyber-Physical Systems (TREC4CPS), Technical Program Committee, TN**.

EMSOFT'18 **18th ACM International Conference on Embedded Software (EMSOFT 2018), Technical Program Committee, Italy**.

FAC'18 **9th International Workshop on Frontiers in Analog CAD (FAC 2018), Technical Program Committee, Austria**.

ICCPS'18 **9th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2018), Technical Program Committee**.

HSCC'18 **21st ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2018), Technical Program Committee**.

CPS-SR'18 **1st Workshop on Cyber-Physical Systems Security and Resilience (CPS-SR 2018), Technical Program Committee, Portugal, April 2018**.

RTSS-AE'17 **38th IEEE Real-Time Systems Symposium (RTSS), Artifact Evaluation Committee, France**.

EMSOFT'17 **17th ACM International Conference on Embedded Software (EMSOFT 2017), Technical Program Committee, South Korea**.

V2CPS'17 **2nd International Workshop on Verification and Validation of Cyber-Physical Systems (V2CPS), Technical Program Committee, co-located with the Integrated Formal Methods Conference (iFM 2017)**.

HSCC'17 **20th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2017), Technical Program Committee, April 11-14**.

RTSS'16 **37th IEEE Real-Time Systems Symposium (RTSS), Technical Program Committee, Portugal**.

EMSOFT'16 **16th ACM International Conference on Embedded Software (EMSOFT 2016), Technical Program Committee, October 2-7**.

ICPP'16 **45th International Conference on Parallel Processing (ICPP 2016), Technical Program Committee, August 16-19**.

HSCC'16 **19th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2016), Technical Program Committee, April 11-14**.

SNR'16 **2nd International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR 2016), Technical Program Committee, April 11**.

RTSS'15 **36th IEEE Real-Time Systems Symposium (RTSS), Technical Program Committee, December 1-4**.

RSWeek'15 **Distributed Control Paradigms to Enable Resilient Microgrids, Technical Program Committee, August 18-20**.

Compel'15 **16th IEEE Workshop on Control and Modeling for Power Electronics (Compel), Technical Program Committee, July 12-15**.

RV'14 **14th International Conference on Runtime Verification (RV), Technical Program Committee, September 22-25**.

CONFERENCE ORGANIZATIONAL SERVICE

HSCC/ICCPS'27 **30th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2027) and 18th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS 2027), CPS-IoT Week, Program Committee Co-Chair, 2027**.

RTAS'27 **33rd IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS 2027), Publicity Co-Chair, May 2027**.

VNN-COMP'26 **7th International Verification of Neural Networks Competition (VNN-COMP 2026), Co-Organizer, Affiliated with SAIV/CAV 2026, 2026**.

AAAI'26 Lab **AAAI-26 Lab Forum LH03: The Verification of Neural Networks Competition (VNN-COMP), Lab Organizer, Singapore, January 2026**.

Liverpool'25 **Interdisciplinary Workshop on Machine Learning and AI (Vanderbilt-Liverpool Seed Grant), Co-Organizer (with Abderrahim Taamouti and Xiaowei Huang), University of Liverpool, UK, December 11, 2025**.

VNN'25 **6th International Verification of Neural Networks Competition (VNN-COMP'25), Co-Chair (with Haoze (Andrew) Wu), Affiliated with CAV and SAIV 2025**.

AISoLA'24 **2nd International Conference on Bridging the Gap Between AI and Reality (AISoLA'24), Co-Chair, October 30-November 3, 2024**.

VNN'24 **5th International Verification of Neural Networks Competition (VNN-COMP'24), Co-Chair (with Haoze (Andrew) Wu), Affiliated with CAV and SAIV 2024**.

ARCH'24 **11th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 8th Hybrid Systems Verification Competition (ARCH-COMP), Chair**.

AISoLA'23 **1st International Conference on Bridging the Gap Between AI and Reality (AISoLA'23), Co-Chair, October 23–28, 2023**.

FORMATS'23 **21st International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS'23), Co-Chair, September 19-21, 2023**.

VNN'23 **4th International Verification of Neural Networks Competition (VNN-COMP'23), Co-Chair, Affiliated with CAV 2023**.

ARCH'23 **10th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 7th Hybrid Systems Verification Competition (ARCH-COMP) Repeatability Evaluation Chair**.

VNN'22 **3rd International Verification of Neural Networks Competition (VNN-COMP'22), Co-Chair, Affiliated with CAV 2022**.

ARCH'22 **9th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 6th Hybrid Systems Verification Competition (ARCH-COMP) Repeatability Evaluation Chair**.

VNN'21 **2nd International Verification of Neural Networks Competition (VNN-COMP'21), Co-Chair, Affiliated with CAV 2021**.

ARCH'21 **8th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 5th Hybrid Systems Verification Competition (ARCH-COMP) Repeatability Evaluation Chair**.

VNN'20 **3rd International Workshop on Verification of Neural Networks (VNN20) and 1st International Verification of Neural Networks Competition (VNN-COMP'20), Co-Chair, Affiliated with CAV 2020**.

ARCH'20 **7th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 4th Hybrid Systems Verification Competition (ARCH-COMP) Repeatability Evaluation Chair**.

HSCC'20 **23rd ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2020), Chair**.

HSCC'19 **22nd ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2019), Chair**.

ARCH'19 **6th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 3rd Hybrid Systems Verification Competition (ARCH-COMP) Repeatability Evaluation Chair**.

RTSS'18 **39th IEEE Real-Time Systems Symposium (RTSS), Organizing Committee**.

SNR'18 **4th International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR), Co-Chair**.

ARCH'18 **5th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 2nd Hybrid Systems Verification Competition (ARCH-COMP) Repeatability Evaluation Chair and Experimental Evaluation Chair**.

ARCH'17 **4th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH) and 1st Hybrid Systems Verification Competition (ARCH-COMP) Repeatability Evaluation Chair and Experimental Evaluation Chair**.

HSCC-RE'17 **19th International Conference on Hybrid Systems: Computation and Control (HSCC 2016), Repeatability Evaluation Chair**.

ICCPS-WiP'16 **7th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), Chair**.

ARCH'16 **3rd International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH), Chair**.

ARCH'15 **2nd International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH), Co-Chair**.

CSL'12 **4th Annual Symposium on Emerging Topics in Control and Modeling: Networked Systems, October 15-16, 2012. Organizing committee chair**.

CPSWeek'11 **Cyber Physical Systems Week (CPSWeek) 2011**.

JOURNAL REVIEWING

ACM CSUR **ACM Computing Surveys (CSUR)**, *2020-present*.

IEEE TCAD **IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems**, *2019-present*.

IEEE TPS **IEEE Transactions on Power Systems**, *2019-present*.

IEEE ACCESS **IEEE Access**, *2018-present*.

ACM TOSEM **ACM Transactions on Software Engineering and Methodology**, *2018-present*.

ACTA INF **Acta Informatica**, *2018-present*.

TCS **Elsevier Theoretical Computer Science (TCS)**, *2017-present*.

AUTOMATICA **Elsevier International Federation of Automatic Control (IFAC) Automatica**, *2017-present*.

PIEEE **Proceedings of the IEEE**, *2017-present*.

ACM TCPS **ACM Transactions on Cyber-Physical Systems (TCPS)**, *2016-present*.

IJRNC **International Journal of Robust and Nonlinear Control (IJRNC)**, *2017*.

IEEE TAC **IEEE Transactions on Automatic Control**, *2013-present*.

IEEE CSM **IEEE Control Systems Magazine (CSM)**, *2016*.

IEEE TPEL **IEEE Transactions on Power Electronics (TPEL)**, *2016*.

ACM TECS **ACM Transactions on Embedded Computing Systems (TECS)**, *2015-present*.

IEEE SJ **IEEE Systems Journal**, *2014-present*.

IET CTA **IET Control Theory and Applications (CTA)**, *2015*.

JSSSE **Journal of Systems Science and Systems Engineering (JSSSE), Springer**, *2015*.

JPEDS **International Journal of Parallel, Emergent and Distributed Systems (JPEDS) (previously Parallel Algorithms and Applications), Taylor & Francis**, *2015*.

ACM TAAS **ACM Transactions on Autonomous and Adaptive Systems (TAAS)**, *2012, 2014*.

IEEE JSAC **IEEE Journal on Selected Areas in Communications (JSAC)**, *2012*.

IEEE TC **IEEE Transactions on Computers**, *2009*.

BOOK REVIEWER

Princeton **Princeton University Press, Book Reviewer for Princeton Series in Applied Mathematics, 2017-2018**.

EXTERNAL REVIEWER FOR CONFERENCES

CDC'19 **IEEE Conference on Decision and Control (CDC), 2019**.

ICCAD'18 **IEEE/ACM International Conference On Computer Aided Design (ICCAD), 2018**.

CDC'18 **IEEE Conference on Decision and Control (CDC), 2018**.

PECI'18 **IEEE Power and Energy Conference at Illinois (PECI), 2018**.

ACC'16 **American Control Conference (ACC), 2016**.

ICST'15 **IEEE International Conference on Software Testing, Verification and Validation (ICST), 2015 Tools Track**.

MSC'14 **IEEE Multi-Conference on Systems and Control, 2014**.

PECI'14 **IEEE Power and Energy Conference at Illinois (PECI), 2014**.

ICCPS'13 **ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), 2013**.

HSCC'13 **ACM International Conference on Hybrid Systems: Computation and Control (HSCC), 2013**.

PECI'13 **IEEE Power and Energy Conference at Illinois (PECI), 2013, 2014**.

HSCC'12 **ACM International Conference on Hybrid Systems: Computation and Control (HSCC), 2012**.

SSS'12 **International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), 2012**.

RSS'12 **Robotics: Science and Systems Conference (RSS), 2012**.

HSCC'11 **ACM International Conference on Hybrid Systems: Computation and Control (HSCC), 2011**.

NFM'11 **NASA Formal Methods Symposium (NFM), 2011**.

HSCC'10 **ACM International Conference on Hybrid Systems: Computation and Control (HSCC), 2010**.

OTHER REVIEWING SERVICE

2018 – 2019 **Curriculum Reviewer**.

- National Council of Examiners for Engineering and Surveying (NCEES), Fundamentals of Engineering (FE) Exam, Professional Activities and Knowledge Study (PAKS), Survey Creation Committee for Electrical/Computer Engineering (2018-2019).

MISCELLANEOUS

Citizenship **US Citizen**.