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Yes: proof

SPRING 2014 COURSE ANNOUNCEMENT

Cyber-Physical Systems
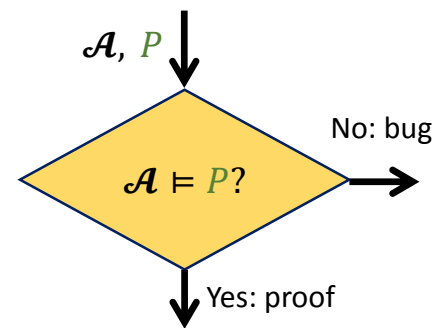
CSE 6359-001 (Course #26407)

(Special Topics in Advanced Systems and Architecture)

Time: M/W 1:00pm—2:20pm, location TBA
Instructor: Taylor Johnson (taylor.johnson@uta.edu), ERB 559
**Course Website: http://www.taylorjohnson.com/class/cse6359/s14/**
CSE Concentration Areas: Computer Systems/Architecture and Software Engineering

Course Content: Cyber-physical systems (CPS) involve the coordination of cyber (software) and physical state, and are becoming prevalent due to the proliferation of devices for control (sensing / actuation), computation, and communications. This seminar course introduces CPS fundamentals, covering relevant topics on: embedded systems (real-time operating systems [RTOS]), control theory (control systems modeling, analysis, and design), networking (layers, protocols, and wireless), reliability, and software engineering (testing and formal analysis of CPS).

Major Topics:
- Modeling, analysis, and design of cyber-physical systems
- Software engineering for embedded systems
- Embedded systems design: control theory, sensing, actuation, communications
- Examples from application areas based on students' interests and backgrounds
- Networking for embedded systems: overview of standard protocols (CAN, SPI, I2C) and more modern protocols (real-time Ethernet, 802.11, Zigbee, Bluetooth)
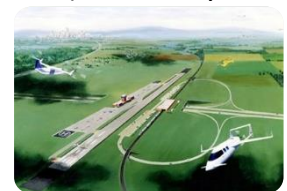
Course Outline: The course will begin with lectures on CPS fundamentals, followed by a student-led portion with summaries and presentations of select research papers. _Grading_ for the course will be based on a few homeworks, paper summaries and presentations, along with a semester project.

Semester Course Projects: Students will select semester-long projects near the beginning of the term. Sample project ideas will be provided, but _students are encouraged to propose their own projects_. Students interested in converting their projects into research papers will receive additional mentoring.

Paper Presentations: The second half of the course will proceed with student-led presentations of recent research papers covering different aspects of CPS design, implementation, and evaluation.

Prerequisites: Students are expected to know mathematics, engineering, and computer science fundamentals on the level of a bachelor's degree (e.g., discrete math, calculus, programming skills). If you have any concerns about your background, please contact the instructor to discuss.

Students from all branches of engineering are welcome and are encouraged to enroll.