UCF DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCEINCE

Summer 2015 Seminar Series

Presented by the CS Division

EMERGING TRENDS IN OPEN SYSTEM TECHNOLOGIES AND MODEL-BASED DESIGN FOR REAL-TIME EMBEDDED SOFTWARE

FRIDAY AUGUST 7, 2015 • 10:00 AM – HEC 450

Embedded software for military and commercial applications are evolving toward more use of open system standards and model-based design. The embedded software industry is motivated to employ open architectures and model-based design, not only because of DoD mandates, such as Better Buying Power, but the emerging recognition of the business value of pursuing these technologies. Technical challenges to achieving the full vision of these technologies remain. This presentation will describe several of these challenges and offer research suggestions to address them. Specific topics and examples include:

- Experiments with an emerging open architecture standard known as the Future Airborne Capability Environment (FACE) – includes a discussion of the FACE standard and results from a contracted activity to test this standard using a data correlation and fusion manager application.
- Simulations and flight demonstration of open networking technologies and standards – includes a description of a demonstration of high bandwidth mobile ad hoc networking that was tested in distributed simulation environments and a DoD-sponsored Joint Expeditionary Force Experiment.
- Trends and opportunities associated with model-based design applied to real-time embedded systems – includes a discussion on modeling and tools that offer the potential to change how real-time embedded software is constructed, especially when those applications are time-critical, mission-critical, or flight-critical.

DR. THOMAS DUBOIS

Boeing

Tom DuBois is the Chief Systems Architect for the Sikorsky/Boeing Joint-Multi-Role / Future Vertical Lift (JMR/FVL) program. In this role, he provides technical leadership and direction for the introduction and integration of mission system technologies for the JMR/FVL program. In his 28 years at Boeing, Tom has a history of successful projects that involve the application of advanced mission systems onto Boeing rotorcraft programs, such as Chinook, V-22, Comanche, and Apache. He has a Bachelors Degree in Mathematics, a Master's Degree in Computer Engineering, and a PhD in Electrical and Computer Engineering. He has published 31 technical papers, edited a textbook on advanced land combat technologies, has 1 patent, 5 additional patent disclosures, and is an adjunct professor at both Penn State University and Villanova University, where he teaches courses in systems engineering, computer science, and Verification & Validation. His areas of technical expertise include open architectures, middleware, avionics integration, systems engineering, advanced algorithms, tactical networking, and modeling and simulation.