

Instructions: Government representatives interested in being invited to attend as participants or observers are asked to submit a brief biography with a few sentences describing past or current interests in CPS.

Bio: Bruce Lewis is the chairman of the Society of Automotive Engineers (SAE), Avionic Systems (AS), Architecture Analysis & Design Language (AADL) Committee, AS-2C, and led the standardization of the AADL in 2004 and its revision in 2008. He is a senior Experimental Developer for the US Army's Aviation and Missile Command, Research, Development and Engineering Laboratory, Software Engineering Directorate (SED). His research has focused on software architecture, reuse, and system evolution since 1991. He has been involved in the development of architecture description language from the beginning, serving as the government lead on various DARPA projects related to architecture description language and real-time systems, including those developing the MetaH Language.

Mr. Lewis is involved with creating and transitioning technology for Cyber Physical Systems full time. He is currently a Resident Affiliate at the Software Engineering Institute working with their Architectural Model-Based Engineering team. He is the Army and DoD representative on an aviation systems industry initiative, the Aerospace Vehicle Systems Institute's System Architecture Virtual Integration AVSI-SAVI program. The SAVI project is a self-financed project piloting new technology and a new acquisition process based on analytical models rather than paper documentation, a single model integrating supplier models, with multiple dimensions of analysis, incremental specification development, used throughout the lifecycle, including aircraft virtual integration early in the development process. Mr. Lewis can present this program and its concepts if it is of interest.

The SAE Architecture Analysis and Design Language (AADL) standard (AS5506) is an architecture description language for real-time, fault-tolerant, scalable, embedded, modular multiprocessor systems (<http://www.aadl.info/>). It can also be used in a system of systems, integrating systems for higher and higher levels of analysis. It provides a common precise language for capturing computer software and hardware architecture for analysis and system integration. It supports system trade-off analysis, system tuning, architectural verification and automated system integration. It was designed to enable the development of highly evolvable systems, development methods based on early, incremental, formal analyses of a system's computer architecture, and rapid incremental development of prototypes that can evolve directly into the final production system.