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Invited Talk

**Rethinking the Formal Specification, Validation, and Verification Process:
Making it an End-to-End Process that is Scalable**

Bret Michael

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&
2010 Engineer of the Year
IEEE Reliability Society

This presentation will introduce a paradigm for creating and enacting formal specification, validation, and verification as an end-to-end and scalable process. The paradigm diverges from some well-known traditional engineering thinking and best practices that the software systems engineering community has yet to abandon. The proposed paradigm addresses the ongoing “software crisis” from a twenty-first century perspective, taking into consideration the reality that for today’s software-intensive systems that are required to be dependable and trustworthy, those systems tend to have large numbers of behavioral requirements and the systems themselves are developed within a distributed software systems engineering environment.

About the speaker

Bret Michael is an expert on the application of formal methods to the development of dependable and trustworthy systems. Since the late 1980s he has conducted research to address the ongoing “software crisis,” a term coined in 1968. Dr. Michael is a professor with the Naval Postgraduate School where he holds a joint appointment with the Computer Science and Electrical & Computer Engineering departments. Prior to joining the Naval Postgraduate School in 1998, Bret held research appointments with the University of California at Berkeley, Institut National de Recherche sur les Transports et leur Sécurité, Argonne National Laboratory, and the Institute for Defense Analyses. He is also a long-time member of IEEE’s Reliability Society and Computer Society. Dr. Michael received the *Engineer of the Year* award from the IEEE Reliability Society in 2010.