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Keynote Speech

Integrating Specification Animation with Specification-Based Program Testing and Inspection for Software Quality Assurance

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Abstract

Specification animation is a technique for dynamic and visualized demonstration of requirements or design specifications for preventing potential bugs in implementations, whilst specification-based testing and inspection can be used to detect bugs already included in the implementation. The question is how these three different techniques can be properly applied to effectively and efficiently reveal bugs in software systems. In this talk, a systematic approach resulting from an integration of specification animation with specification-based testing and inspection to software verification and validation is introduced. Its underlying principle is explained with examples and its future development direction is discussed.

About the speaker

Shaoying Liu is Professor of Software Engineering at Hosei University, Japan. He received the Ph.D in Computer Science from the University of Manchester, U.K. in 1992. His research interests include Formal Engineering Methods for Software Development, Specification Verification and Validation, Specification-Based Program Inspection, Specification-Based Program Testing, and Intelligent Software Engineering Environment. He has published a book titled *Formal Engineering for Industrial Software Development Using the SOFL Method* with Springer-Verlag, seven edited conference proceedings, and over 150 academic papers in refereed journals and international conferences. He proposed to use the terminology of “Formal Engineering Methods” in 1997, has established Formal Engineering Methods as a research area based on his extensive research on SOFL (Structured Object-oriented Formal Language) and its related technologies since 1989, and the development of ICFEM conference series since 1997. In recent years, he served as General Co-Chair of the International Conference on Formal Engineering Methods (ICFEM 2012), Program Co-Chair of the International Workshop on SOFL+MSVL (SOFL+MSVL 2013 and 2014), Steering Committee Chair for ICFEM 2009~2014, and PC member for numerous international conferences. He is on the editorial board for the Journal of Software Testing, Verification and Reliability (STVR). He is a Fellow of British Computer Society, a Senior Member of IEEE Computer Society, and a member of Japan Society for Software Science and Technology.