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Plenary Panel Session at CSEE&T 2016

Teaching Software Testing from an Industry Perspective

Moderator:

Mark Paulk, University of Texas at Dallas

Panelists:

Anthony Adesanwo, Match Group
Vidroha Debroy, Verizon Communications
Dennis Frailey, Raytheon Fellow
Laura Henning, Parker Hannifin Aerospace
Tom Wissink, Lockheed Martin

Abstract

Software testing courses typically cover topics such as black box testing (requirements coverage, equivalence class partitioning, boundary value analysis), white box (statement coverage, decision coverage, condition coverage, MC/DC), and other techniques such as mutation testing. Some test generation techniques are based on formal specifications. Is the material that we are teaching our students what they will need after graduation? To what degree are the various techniques primarily of academic interest? Should an undergraduate course focus on the pragmatic needs of industry? Should the “advanced topics” be the focus of the graduate courses? For the industry representatives on the panel: What testing techniques are used in your software projects? What testing techniques do you find your new hires inadequately prepared to use? What testing tools have you found useful in doing real-world testing? What testing needs do you have that your current staff are not well-prepared to address – perhaps needing further research (and tool development) to adequately address? For the academic members of the panel: What testing techniques do you think should be taught to undergraduates? Graduates? What testing techniques are you researching that you think are ready for industry piloting? What testing techniques do you think should be more broadly used in industry? And for both: how would you place these observations in a historical context? This panel addresses one aspect of the broader realm of whether universities are teaching students what they need to do their industry jobs.

About the panelists

Mark Paulk is currently on the faculty at the University of Texas at Dallas. Prior to moving to UT Dallas, he was with Carnegie Mellon University in Pittsburgh for 25 years, researching and teaching on best practices for software engineering and service management. He is best known for his work on the Capability Maturity Model for Software at the Software Engineering Institute.

He was co-project editor of the ISO/IEC 15504:2 (Process Assessment) reference model, is a co-author of the eSourcing Capability Model for Service Providers, and is the 2016 Vice President of the Standards Activities Board for the IEEE Computer Society.

Anthony Adesanwo is currently a QA Manager at the Match Group, a company that runs several online dating services that include Tinder, OkCupid and Match.com to name a few. For the past 15 years, he has primarily been working as a software testing professional. He graduated with an MBA from the University of Texas at Dallas in 2005 and has an undergraduate degree in Management Information Systems from the University of Oklahoma. His current responsibilities at Match include managing and developing automation testing frameworks and tools that assist in testing and improving the quality of software developed for multiple technology platforms that include APIs, mobile applications, web-UIs, and several distributed data storage and messaging systems.

Vidroha Debroy is currently a Software Architect at Verizon Communications, having previously been a Senior Software Engineer at Hudson Alley Software, and a Software Development Engineer in Testing at Microsoft prior to that. He is also currently an Adjunct Professor of Computer Science and Engineering at Southern Methodist University (SMU). Dr. Debroy graduated with his PhD in Software Engineering from the University of Texas at Dallas in 2011, under the guidance of Prof. Eric Wong. His research interests include automated code refactoring, static analysis (especially in the context of JavaScript), test case prioritization, automated debugging and DevOps.

Dennis Frailey is a recently retired Principal Fellow at Raytheon Company in Plano, Texas. He also teaches software engineering and computer science as an Adjunct Professor of Computer Science and Computer Engineering at Southern Methodist University (SMU) and the University of Texas at Arlington (UTA). At Raytheon, Dennis led several major software engineering projects including efforts to automatically generate test code from requirements. He was also a specialist in six sigma, software measurement and cycle time reduction. Dennis is a member of the IEEE Computer Society Board of Governors, former chair of the Industry Advisory Committee to the Texas Board of Professional Engineers, and was ACM vice president from 1986-1988.

Laura Henning currently works for Parker Hannifin in the Central Engineering portion of their Aerospace Group. She has worked in the Aerospace industry for over 15 years in software test and software/firmware quality positions, supporting DO-178B/C, DO-254 and ARP4754 development. Her experience spans several companies including Esterline, Eaton and L-3. Laura started her professional career at TRW at the Automotive Electronics group. The product lines she has supported include a complete cockpit project, data concentrators, electronic horizontal situation indicators, electronic standby instrument systems, a flap controller and remote keyless entry systems. She has Bachelor's degree in Computer Science from Principia College.

Tom Wissink worked for Lockheed Martin (LM) managing, developing and testing software intensive systems for 35 years. He was a Lockheed Martin Senior Fellow when he retired in January 2016. From January 2010 until his retirement he was the LM Corporate Director of Integration, Test and Evaluation. Throughout his career he worked on programs like the Space Shuttle, Hubble Telescope, GPS and several Satellite Command and Control centers. Tom is a member of the National Defense Industrial Association (NDIA) and was a past chairperson for the Industrial Committee on Test & Evaluation (ICOTE) as well as a past co-chair of the Development Test & Evaluation (DT&E) committee. He has presented at the Aerospace Testing Seminar as well as at the STAREAST and STARWEST conferences. He has a Bachelor's degree in Computer Science from Florida Atlantic University.