

**Abstract:**

Although considerable effort has been invested in developing methods for testing and failure detection, synthesis of programs from abstract models and verification of programs (and models), techniques for locating the root cause of observed software failures are still relatively immature. Therefore, the utility for general testing and debugging techniques remain limited to specific programs, execution environments, and problem contexts. Furthermore, no plug&play toolset exists providing state-of-the-art techniques to help developers with testing and debugging. In this talk, we will discuss current state-of-the-art techniques for testing and debugging and how the combination of all these techniques helps to gain a better understanding of the software application. We will discuss the connection with testing and a metric that helps get better test suites with respect to diagnosability. The techniques discussed in the talk are available within a plugin for the Eclipse IDE, coined GZoltar.

**About:**

Prof. Rui Abreu holds a Ph.D. in Computer Science - Software Engineering from the Delft University of Technology, The Netherlands, and a M.Sc. in Computer and Systems Engineering from the University of Minho, Portugal. His research revolves around software quality, with emphasis in automating the testing and debugging phases of the software development life-cycle as well as self-adaptation. Dr. Abreu has extensive expertise in both static and dynamic analysis algorithms for improving software quality. He is the recipient of 6 Best Paper Awards, and his work has attracted considerable attention. Before joined IST, ULisboa as an Associate Professor and INESC-ID as a Senior Researcher, he was currently a member of the Model-Based Reasoning group at PARC's System and Sciences Laboratory. He has co-founded DashDash in January 2017, a platform to create web apps using only spreadsheet skills. The company has secured \$9M in Series A funding in May 2018. More at <http://www.ruimaranhao.com/>