

# **2016 IEEE/ACM 11th International Workshop in Automation of Software Test (AST 2016)**

**Austin, Texas, USA  
14 – 15 May 2016**



**IEEE Catalog Number: CFP1615D-POD  
ISBN: 978-1-5090-2190-1**

**Copyright © 2016, Association for Computing Machinery  
All Rights Reserved**

***\*\*\*This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1615D-POD
ISBN (Print-On-Demand):	978-1-5090-2190-1
ISBN (Online):	978-1-4503-4151-6

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# 11th International Workshop on Automation of Software Test (AST 2016)

## Table of Contents

Message from the Workshop Chairs.....	vii
Committees and Reviewers .....	ix
Sponsors and Supporters .....	xi

### Paper Session 1: Tests Automation

Automated Test Generation for Synchronous Controllers .....	1
<i>Mouna Tka Mnad, Christophe Deleuze, Ioannis Parissis, Jackie Launay, and Jean Baptiste Gning</i>	
<i>—Laboratoire LCIS, France; University of Grenoble Alpes - Grenoble INP; France; Crouzet, France</i>	
Model Extraction and Test Generation from JUnit Test Suites.....	8
<i>Pablo Lamela Seijas, Simon Thompson, and Miguel Ángel Francisco Fernández</i>	
<i>—University of Kent, United Kingdom; Interoud Innovation S.L., Spain</i>	
Automated Testing of DSL Implementations - Experiences from Building mbeddr.....	15
<i>Daniel Ratiu and Markus Voelter</i>	
<i>—Siemens CT, Germany; Independent/itemis, Germany</i>	

### Paper Session 2: Coverage and Mutation Analysis

Does Code Coverage Provide a Good Stopping Rule for Operational Profile Based Testing? .....	22
<i>Breno Miranda and Antonia Bertolino</i>	
<i>—Università di Pisa, Italy; ISTI-CNR, Italy</i>	
The Impact of Fault Type on the Relationship between Code Coverage and Fault Detection.....	29
<i>Amanda Schwartz and Michael Hetzel</i>	
<i>—University of South Carolina Upstate, USA</i>	
Virtual Mutation Analysis of Relational Database Schemas .....	36
<i>Phil McMinn, Gregory M. Kapfhammer, and Chris J. Wright</i>	
<i>—University of Sheffield, United Kingdom, Allegheny College, USA</i>	

Empirical Study of Correlation between Mutation Score and Model Inference Based Test Suite Adequacy Assessment .....	43
<i>Hermann Felbinger, Franz Wotawa, and Mihai Nica</i>	
— <i>Virtual Vehicle Research Center, Austria; Technische Universitaet Graz, Austria; AVL List GmbH, Austria</i>	

### **Paper Session 3: Testing Smartphone Applications**

Fuzzy and Cross-App Replay for Smartphone Apps .....	50
<i>Yongjian Hu and Iulian Neamtii</i>	
— <i>University of California Riverside, USA; New Jersey Institute of Technology, USA</i>	
Graph-Aided Directed Testing of Android Applications for Checking Runtime Privacy Behaviours.....	57
<i>Joseph Chan Joo Keng, Lingxiao Jiang, Tan Kiat Wee, and Rajesh Krishna Balan</i>	
— <i>Singapore Management University (SMU), Singapore</i>	
Automated Test Generation for Detection of Leaks in Android Applications.....	64
<i>Hailong Zhang, Haowei Wu, and Atanas Rountev</i>	
— <i>Ohio State University, USA</i>	

### **Paper Session 4: Fault Detection and Repair**

Find More Bugs with QuickCheck! .....	71
<i>John Hughes, Ulf Norell, Nick Smallbone, and Thomas Arts</i>	
— <i>Chalmers University of Technology, Sweden; Quviq AB, Sweden</i>	
Automatic Web Security Unit Testing: XSS Vulnerability Detection .....	78
<i>Mahmoud Mohammadi, Bill Chu, Heather Richter Lipford, and Emerson Murphy-Hill</i>	
— <i>University of North Carolina at Charlotte, USA; NC State University, USA</i>	
DynaMoth: Dynamic Code Synthesis for Automatic Program Repair .....	85
<i>Thomas Durieux and Martin Monperrus</i>	
— <i>INRIA, France; University of Lille, France</i>	
<b>Author Index .....</b>	<b>92</b>