

2019 IEEE/ACM 14th International Workshop on Automation of Software Test (AST 2019)

**Montreal, Quebec, Canada
27 May 2019**



**IEEE Catalog Number: CFP1915D-POD
ISBN: 978-1-7281-2238-0**

**Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

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

IEEE Catalog Number:	CFP1915D-POD
ISBN (Print-On-Demand):	978-1-7281-2238-0
ISBN (Online):	978-1-7281-2237-3

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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2019 IEEE/ACM 14th International Workshop on Automation of Software Test (AST) **AST 2019**

Table of Contents

Message from the AST 2019 Program Chairs .vii.....	
AST 2019 Organizing Committee ix.....	
AST 2019 Program Committee x.....	

Invited Paper

Software Metrics Artifacts Making Web Quality Measurable .1.....	
<i>Andres-Leonardo Martinez-Ortiz (Computer Society, IEEE), David Lizcano (Open University, UDIMA), and Miguel Ortega (Facultad de Informatica, Universidad Politecnica de Madrid)</i>	

Testing Improvement

Wait, Wait. No, Tell Me. Analyzing Selenium Configuration Effects on Test Flakiness .7.....	
<i>Kai Presler-Marshall (North Carolina State University), Eric Horton (North Carolina State University), Sarah Heckman (North Carolina State University), and Kathryn Stolee (North Carolina State University)</i>	
Improving the Testing Efficiency of Selenium-Based Load Tests .14.....	
<i>Shahnaz Mohammadi Shariff (Queen's University), Heng Li (Queen's University), Cor-Paul Bezemer (University of Alberta), Ahmed E. Hassan (Queen's University), Thanh H.D. Nguyen (BlackBerry), and Parminder Flora (BlackBerry)</i>	
Towards Continuous Software Reliability Testing in DevOps .21.....	
<i>Roberto Pietrantuono (Università degli Studi di Napoli Federico II), Antonia Bertolino (CNR-ISTI), Guglielmo De Angelis (CNR-IASI), Breno Miranda (Federal University of Pernambuco), and Stefano Russo (Università degli Studi di Napoli Federico II)</i>	

Domain-Specific Approaches

Fully Automated Compiler Testing of a Reasoning Engine via Mutated Grammar Fuzzing .28.....	
<i>Yavuz Koroglu (Bogazici University) and Franz Wotawa (Graz University of Technology)</i>	

Automating GUI Response Time Measurements in Mobile and Web Applications .35.....
Nivia Cruz Quental (Federal University of Pernambuco), Clairton de Albuquerque Siebra (University of Paraiba), Jonysberg Peixoto Quintino (Federal University of Pernambuco), Fabiana Florentin (SIDI/Samsung), and Fabio Queda Bueno da Silva (Federal University of Pernambuco)

Towards a Method for Automated Testing in Robotic Process Automation Projects .42.....
Jesús Chacón Montero (Universidad de Sevilla), Andres Jimenez Ramirez (Universidad de Sevilla), and Jose Gonzalez Enríquez (Universidad de Sevilla)

Test Data

Generating Random Structurally Rich Algebraic Data Type Values .48.....
Agustín Mista (Chalmers University of Technology) and Alejandro Russo (Chalmers University of Technology)

Automated Combinatorial Testing for Detecting SQL Vulnerabilities in Web Applications .55.....
Dimitris E. Simos (SBA Research), Jovan Zivanovic (SBA Research), and Manuel Leithner (SBA Research)

D-TAF: Test Automation Framework Compatible with Various DBMS .62.....
Woosup Lim (Telecommunications Technology Association), Hyunchong Kim (Telecommunications Technology Association), Jaehyo Lee (Telecommunications Technology Association), and Oksu Song (Telecommunications Technology Association)

Software Testing: Cost Reduction in Industry 4.0 .69.....
Kevin J. Valle-Gómez (University of Cadiz), Pedro Delgado-Pérez (University of Cadiz), Inmaculada Medina-Bulo (University of Cadiz), and José Magallanes-Fernández (Navantia S.A., S.M.E., Unidad de Negocios Sistemas)

Author Index 71