

# ICPC 2015

May 18-19, 2015  
Florence, Italy

## Program of the 23<sup>th</sup> IEEE International Conference on Program Comprehension

— Monday, May 18 —

**Welcome from the Chairs**  
Mon, May 18, 08:45 - 9:00  
Room: Sala Verde

*Andrea De Lucia, Christian Bird, Rocco Oliveto*

**Keynote**  
Mon, May 18, 09:00 - 10:30  
Room: Sala Verde

**Test Complement Exclusion: Guarantees from  
Dynamic Analysis**

*Andreas Zeller (Saarland University, Germany)*



Modern test generation techniques allow to generate as many executions as needed; combined with dynamic analysis, they allow for understanding program behavior in situations where static analysis is challenged or impossible. However, all

these dynamic techniques would still suffer from the incompleteness of testing: If some behavior has not been observed so far, there is no guarantee that it may not occur in the future. In this talk, I introduce a method called Test Complement Exclusion that combines test generation and sandboxing to provide such a guarantee. Test Complement Exclusion will have significant impact in the security domain, as it effectively detects and protects against unexpected changes of program behavior; however, guarantees would also strengthen findings in dynamic software comprehension. First experiments on real-world ANDROID programs demonstrate the feasibility of the approach.

**Andreas Zeller** is a full professor for Software Engineering at Saarland University in Saarbrücken, Germany, since 2001. His research concerns the analysis of large software systems and their development process. In 2010, Zeller was inducted as Fellow of the ACM for his contributions to automated debugging and mining software archives, for

which he also was awarded 10-year impact awards from ACM SIGSOFT and ICSE. In 2011, he received an ERC Advanced Grant, Europe's highest and most prestigious individual research grant, for work on specification mining and test case generation. In 2013, Zeller co-founded Testfabrik AG, a start-up on automatic testing of Web applications, where he chairs the supervisory board.

**Coffee Break**  
Mon, May 18, 10:30 - 11:00

**Mining Software Repositories**  
Mon, May 18, 11:00 - 12:30  
Room: Sala Verde  
Session Chair: Andy Zaidman

**Discovering Loners and Phantoms in Commit and Issue Data**

*Gerald Schermann, Martin Brandtner, Sebastiano Panichella, Philipp Leitner, Harald Gall*

**Detection of Software Evolution Phases Based on Development Activities**

*Omar Benomar, Hani Abdeen, Houari Sahraoui, Pierre Poulin, Mohamed Aymen Saied*

**I Know What You Did Last Summer - An Investigation of How Developers Spend Their Time**

*Roberto Minelli, Andrea Mocchi, Michele Lanza*

**RCLinker: Automated Linking of Issue Reports and Commits Leveraging Rich Contextual Information**

*Tien-Duy B. Le, Mario Linares Vasquez, David Lo, Denys Poshyvanyk*

**Generating Reproducible and Replayable Bug Reports from Android Application Crashes**

*Martin White, Mario Linares Vasquez, Peter Johnson, Carlos Bernal-Cardenas, Denys Poshyvanyk*

**Active Semi-Supervised Defect Categorization**

*Ferdian Thung, Le Dinh Xuan Bach, David Lo*

**Lunch**  
Mon, May 18, 12:30 - 14:00

## Learning and Sharing Program Knowledge

Mon, May 18, 14:00 - 15:30

Room: Sala Verde

Session Chair: Denys Poshyvanyk

### Could We Infer Unordered API Usage Patterns only using the Library Source Code?

Mohamed Aymen Saied, Hani Abdeen, Omar Benomar, Houari Sahraoui

### Searching the State Space: A Qualitative Study of API Protocol Usability

Joshua Sunshine, James Herbsleb, Jonathan Aldrich

### Synonym Suggestion for Tags on Stack Overflow

Stefanie Beyer, Martin Pinzger

### Code, Camera, Action: How Software Developers Document and Share Program Knowledge Using YouTube

Laura MacLeod, Margaret-Anne Storey, Andreas Bergen

### Generating Refactoring Proposals to Remove Clones from Automated System Tests

Benedikt Hauptmann, Sebastian Eder, Maximilian Junker, Elmar Juergens, Volkmar Woinke

### Framework Instantiation Using Cookbooks Constructed With Static and Dynamic Analysis (ERA paper)

Raquel Lafeta, Marcelo Almeida Maia, David Röthlisberger

## Coffee Break

Mon, May 18, 15:30 - 16:00

## Tool Demo Session

Mon, May 18, 16:00 - 17:00

Room: Sala Verde

Session Chairs: Bram Adams, Sonia Haiduc

### VerXCombo: An interactive data visualization of popular library version combinations

Yuki Yano, Raula Gaikovina Kula, Takashi Ishio, Katsuro Inoue

### ITMViz: Interactive Topic Modeling for Source Code Analysis

Amir Saeidi, Jurriaan Hage, Ravi Khadka, Slinger Jansen

### ExceptionTracer: A Solution Recommender for Exceptions in an Integrated Development Environment

Vahid Amintabar, Abbas Heydarnoori, Mohammad Ghafari

### Limpio - Lightweight MPI instrumentatiOn

Milan Pavlovic, Milan Radulovic, Alex Ramirez, Petar Radojkovic

## Social Event and Award

Mon, May 18, 17.30

— Tuesday, May 19 —

## Most Influential Paper

Tue, May 19, 08:30 - 09:30

Room: Sala Verde

Session Chairs: Christian Bird, Rocco Oliveto

## Industry Session

Tue, May 19, 09:30 - 10:30

Room: Sala Verde

Session Chair: Cristina Marinescu

### Fault Localization during System testing

Pavan Kumar Chittimalli, Vipul Shah

### Recovering Workflows from Functional Tests

Chetan Khadke, Sunjit Rana, Vipul Shah

### Reordering Results of Keyword-based Code Search for Supporting Simultaneous Code Changes

Yusuke Sabi, Hiroaki Murakami, Yoshiki Higo, Shinji Kusumoto

## Coffee Break

Tue, May 19, 10:30 - 11:00

## Users, User Interfaces, and Feature Location

Tue, May 19, 11:00 - 12:30

Room: Sala Verde

Session Chair: Gabriele Bavota

### Two User Perspectives in Program Comprehension: End Users and Developer Users

Tobias Roehm

### Exploring the Use of Concern Element Role Information in Feature Location Evaluation

Emily Hill, David Shepherd, Lori Pollock

### Rethinking User Interfaces for Feature Location

Fabian Beck, Bogdan Dit, Jaleo Velasco-Madden, Daniel Weiskopf, Denys Poshyvanyk

### Detecting Clones in Android Applications through Analyzing User Interfaces

Charlie Soh, Hee Beng Kuan Tan, Yauhen Leanidavich Arnatovich, Lipo Wang

### Manually Locating Features in Industrial Source Code: The Search Actions of Software Nomads (ERA paper)

Howell Jordan, Jacek Rosik, Sebastian Herold, Goetz Botterweck, Jim Buckley

### From Obfuscation to Comprehension (ERA paper)

Eran Avidan, Dror Feitelson

### The Plague Doctor: A Promising Cure for the Window Plague (ERA paper)

Roberto Minelli, Andrea Mocchi, Michele Lanza

## Lunch

Tue, May 19, 12:30 - 14:00

## Large Scale Empirical Studies

Tue, May 19, 14:00 - 15:30

Room: Sala Verde

Session Chair: Michael Collard

## Polymorphism in the Spotlight: Studying its Prevalence in Java and Smalltalk

*Nevena Milojkovi, Andrea Caracciolo, Mircea Lungu, Oscar Nierstrasz, David Röthlisberger, Romain Robbes*

## A Survey of the Forms of Java Reference Names

*Simon Butler, Michel Wermelinger, Yijun Yu*

## Make It Simple - An Empirical Analysis of GNU Make Feature Use in Open Source Projects

*Douglas H. Martin, James R. Cordy, Bram Adams, Giulio Antoniol*

## License Usage and Changes: A Large-Scale Study of Java Projects on GitHub

*Christopher Vendome, Mario Linares Vasquez, Gabriele Bavota, Massimiliano Di Penta, Daniel German, Denys Poshyvanyk*

## Unsupervised Software Categorization using Bytecode

*Javier Escobar Avila, Mario Linares Vasquez, Sonia Haiduc*

## The Last Line Effect (ERA paper)

*Moritz Beller, Andy Zaidman, Andrey Karpov*

## Coffee Break

Tue, May 19, 15:30 - 14:00

## Reading and Visualization

Tue, May 19, 15:30 - 17:05

Room: Sala Verde

Session Chair: Emily Hill

## How Programmers Read Regular Code: A Controlled Experiment Using Eye Tracking

*Ahmad Jbara, Dror Feitelson*

## Eye Movements in Code Reading: Relaxing the Linear Order

*Teresa Busjahn, Roman Bednarik, Andrew Begel, Martha Crosby, James H. Paterson, Carsten Schulte, Bonita Sharif, Sascha Tamm*

## Comparing Trace Visualizations for Program Comprehension through Controlled Experiments

*Florian Fittkau, Santje Finke, Wilhelm Hasselbring, Jan Waller*

## Towards Visual Reflexion Models (ERA paper)

*Marcello Romanelli, Andrea Mocci, Michele Lanza*

## Understanding Web Applications Using Component Based Visual Patterns (ERA paper)

*Dan C. Cosma, Petru F. Mihancea*

## ICPC 2015 Closing

Tue, May 19, 17:05 - 17:15

Room: Sala Verde

## Open SC Meeting with ICPC 2016 Presentation

Tue, May 19, 17:15

Room: Sala Verde