

2016 IEEE 24th International Conference on Program Comprehension (ICPC 2016)

**Austin, Texas, USA
16-17 May 2016**



**IEEE Catalog Number: CFP16009-POD
ISBN: 978-1-5090-1429-3**

**Copyright © 2016 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 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:	CFP16009-POD
ISBN (Print-On-Demand):	978-1-5090-1429-3
ISBN (Online):	978-1-5090-1428-6
ISSN:	1092-8138

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

PROCEEDINGS

24TH IEEE International Conference on Program Comprehension

ICPC'16 AUSTIN

TABLE OF CONTENTS

MESSAGE FROM THE CHAIRS

TECHNICAL RESEARCH 1: CODE QUALITY

Monday, May 16 11:00 - 12:30 pm

A Textual-based Technique for Smell Detection

Fabio Palomba, Annibale Panichella, Andrea De Lucia, Rocco Oliveto, and Andy Zaidman

Context-Based Code Smells Prioritization for Prefactoring

Natthawute Sae-Lim, Shinpei Hayashi, and Motoshi Saeki

Do Code Smells Hamper Novice Programming? A Controlled Experiment on Scratch Programs

Felienne Hermans and Efthimia Aivaloglou

Improving Code Readability Models with Textual Features

Simone Scalabrino, Mario Linares-Vásquez, Denys Poshyvanyk, and Rocco Oliveto

TECHNICAL RESEARCH 2: PROGRAM COMPREHENSION

Monday, May 16 2:00 - 3:30 pm

Multistaging to Understand: Distilling the Essence of Java Code Examples

Huascar Sanchez, Jim Whitehead, and Martin Schaefer

Navigating the WordPress Plugin Landscape

Mark Hills

A Case Study of Program Comprehension Effort and Technical Debt Estimations

Vallary Singh, Lori Pollock, Will Snipes, and Nicholas A. Kraft

On Method Ordering

Yorai Geffen and Shahar Maoz

TECHNICAL RESEARCH 3: SUPPORTING SOFTWARE DEVELOPERS

Monday, May 16 4:00 - 5:30 pm

Identifying Modularization Patterns by Visual Comparison of Multiple Hierarchies

Fabian Beck, Jan Melcher, and Daniel Weiskopf

Glyph-Based Software Component Identification

Ignacio Fernandez, Alexandre Bergel, Juan Pablo Sandoval Alcocer, Alejandro José Infante Rica, and Tudor Girba

Taming the IDE with Fine-grained Interaction Data

Roberto Minelli, Andrea Mocci, Romain Robbes, and Michele Lanza

Learning to Rank for Bug Report Assignee Recommendation

Yuan Tian, Dinusha Wijedasa, David Lo, and Claire Le Goues

TECHNICAL RESEARCH 4: LANGUAGE USAGE

Tuesday, May 17 2:00 - 3:30 pm

Can We Find Stable Alternatives for Unstable Eclipse Interfaces?

Simon Kawuma, John Businge, and Engineer Bainomugisha

A Cooperative Approach for Combining Client-based and Library-based API Usage Pattern Mining

Mohamed Aymen Saied and Houari Sahraoui

A Novel Approach for Estimating Truck Factors

Guilherme Avelino, Leonardo Passos, Andre Hora, and Marco Tulio Valente

Can We Enforce a Benefit for Dynamically Typed Languages in Comparison to Statically Typed Ones? A Controlled Experiment

Sebastian Okon and Stefan Hanenberg

TECHNICAL RESEARCH 5: ASSESSING CODE

Tuesday, May 17 4:00 - 5:30 pm

Identifying Functionally Similar Code in Complex Codebases

Fang-Hsiang Su, Jonathan Bell, Gail Kaiser, and Simha Sethumadhavan

On Automatically Detecting Similar Android Apps

Mario Linares-Vasquez, Andrew Holtzhauer, and Denys Poshyvanyk

Rule-Directed Code Clone Synchronization

Xiao Cheng, Hao Zhong, Yuting Chen, Zhenjiang Hu, and Jianjun Zhao

Are Unreachable Methods Harmful? Results from a Controlled Experiment

Simone Romano, Christopher Vendome, Giuseppe Scanniello, and Denys Poshyvanyk

SHORT PAPERS 1: GETTING DEEP INSIGHT INTO YOUR SOFTWARE

Tuesday, May 17 11:00 - 12:30 pm

Investigating the Android Apps' Success: An Empirical Study

Latifa Guerrouj and Olga Baysal

Retrofitting Automatic Testing through Library Tests Reusing

Lei Ma, Cheng Zhang, Bing Yu, and Jianjun Zhao

Measuring Energy Footprint of Software Features

Syed Islam, Adel Nouredine and Rabih Bashroush

Human-Machine Resolution of Invisible Control Flow

Suraj Kothari, Ahmed Tamrawi, and Jon Mathews

Extracting Configuration Parameter Interactions using Static Analysis

Chelsea Metcalf, Farhaan Fowze, Tuba Yavuz, and Jose Fortes

Android Build Dependency Analysis

Bo Zhang, Vasil Tenev, and Martin Becker

SHORT PAPERS 2: COMPREHENSION YOU CAN USE

Tuesday, May 17 2:00 - 3:30 pm

Software Development and Tool Usability

Brian Dillon and Richard Thompson

Detecting Exploratory Programming Behaviors for Introductory Programming Exercises

Erina Makiyara, Hiroshi Igaki, Norihiro Yoshida, Kenji Fujiwara, and Hajimu Iida

Embedding Programming Context into Source Code

Alexander Breckel and Matthias Tichy

Synchronized Static and Dynamic Visualization in a Web-Based Programming Environment

Jeong Yang, Young Lee, and David Hicks

Case Studies of Optimized Sequence Diagram for Program Comprehension

Madhusudan Srinivasan, Jeong Yang, and Young Lee

Comprehending Source Code of Large Software System for Reuse

Aniket Kulkarni

SHORT PAPERS 3: ATTACK OF THE DEVELOPMENT TEAM

Tuesday, May 17 4:00 - 5:30 pm

Defending Against the Attack of the Micro-clones

Rijnard van Tonder and Claire Le Goues

Towards Quality Gates in Continuous Delivery and Deployment

Gerald Schermann, Jürgen Cito, Philipp Leitner, and Harald Gall

Revisiting the Relationship Between Code Smells and Refactoring

Norihiro Yoshida, Tsubasa Saika, Eunjong Choi, Ali Ouni, and Katsuro Inoue

Generating Clone References with Less Human Subjectivity

Yusuke Yuki, Yoshiki Higo, Keisuke Hotta, and Shinji Kusumoto

Understanding Interactive Debugging with Swarm Debug Infrastructure

Fabio Petrillo, Zéphyrin Soh, Foutse Khomh, Marcelo Pimenta, Carla Freitas, and Yann-Gaël Guéhéneuc

TOOL DEMONSTRATIONS

Tuesday, May 17 11:00 - 12:30 pm

FeedBaG: An Interaction Tracker for Visual Studio

Sven Amann, Sebastian Proksch and Sarah Nadi

InfectoMeter: A Tool that Helps to Place Bug Fixes

Mohammad Azadmanesh and Matthias Hauswirth

Inline: Now You're Coding with Portals

Alexander Breckel and Matthias Tichy

WAVI: A Reverse Engineering Tool for Web Applications

Jonathan Cloutier, Sègla Kpodjedo and Ghizlane El Boussaidi

PORBS: A Parallel Observation-based Slicer

Syed Islam and Dave Binkley

STAC: A Tool for Static Textual Analysis of Code

Saket Khatiwada, Michael Kelly and Anas Mahmoud

Hey! Are You Injecting Side Effect?: A Tool for Detecting Purity Changes in Java Methods

Naoto Ogura, Jiachen Yang, Keisuke Hotta, Yoshiki Higo and Shinji Kusumoto

WB4SP: A Tool to Build the Word Base for Specific Programs

Weisong Sun, Xiaobing Sun, Hui Yang and Bin Li