# WCRE 2010

## Table of Contents

- Message from the General Chair .................................................. viii
- Organizing Committee ................................................................ ix
- Message from the Program Chairs ................................................... x
- Program Committee ................................................................... xii
- Additional Reviewers .................................................................. xiii
- Keynotes; Stevens Lecture ............................................................. xiv
- WCRE 2000 Most Influential Paper ............................................... xvi

---

### Session I – Mining Software Repositories 1

- Normalizing Source Code Vocabulary ........................................... 3
  - Dawn Lawrie, Dave Binkley, and Christopher Morrell
- Studying the Impact of Clones on Software Defects ...................... 13
  - Gehan M.K. Selim, Liliane Babour, Weiyi Shang, Bram Adams, Ahmed E. Hassan, and Ying Zou
- Mining Source Code for Structural Regularities ............................ 22
  - Angela Lozano, Andy Kellens, Kim Mens, and Gabriela Arevalo

### Session II – Program Comprehension

- On the Use of Automated Text Summarization Techniques for Summarizing Source Code ......................................................... 35
  - Sonia Haiduc, Jairo Aponte, Laura Moreno, and Andrian Marcus
- Static Analysis for Understanding Shared Objects in Open Concurrent Java Programs ............................................................ 45
  - Ana Milanova and Yin Liu
- Visually Supporting Source Code Changes Integration: The Torch Dashboard ................................................................. 55
  - Veronica Uquillas Gomez, Stephane Ducasse, and Theo D'Hondt

### Session III – Dynamic Analysis

- Understanding Plug-in Test Suites from an Extensibility Perspective ......................................................... 67
  - Michaela Greiler, Hans-Gerhard Gross, and Aris van Deursen
- Immediacy through Interactivity: Online Analysis of Run-time Behavior ................................................................. 77
  - Michael Perscheid, Bastian Steinert, Robert Hirschfeld, Felix Geller, and Michael Haupi
- Extracting Sequence Diagrams from Execution Traces Using Interactive Visualization ..................................................... 87
  - Hassenn Grati, Houari Sahraoui, and Pierre Poulin
Session IV - Software Evolution

Evaluating the Impact of Software Evolution on Software Clustering .................................................................99
Fabian Beck and Stephan Diehl

Understanding Feature Evolution in a Family of Product Variants .................................................................109
Yinxing Xue, Zhenchang Xing, and Stan Jarzabek

Blending Conceptual and Evolutionary Couplings to Support Change Impact Analysis in Source Code .................................................................119
Husefa Kagdi, Malcom Gethers, Denys Poshvanyk, and Michael L. Collard

Session V - Reverse Engineering and Security

Reverse Engineering Self-Modifying Code: Unpacker Extraction .................................................................131
Saumya Debray and Jay Patel

Reverse Engineering Utility Functions Using Genetic Programming to Detect Anomalous Behavior in Software .................................................................141
Suny Wong, Melissa Aaron, Jeffrey Segall, Kevin Lynch, and Spiros Mancoridis

A Refined Decompiler to Generate C Code with High Readability .................................................................150
Gengbiao Chen, Zhuo Wang, Ruoyu Zhang, Kan Zhou, Shiqiu Huang, Kangqi Ni, Zhengwei Qi, 
Kai Chen, and Haibing Guan

Heroes in FLOSS Projects: An Explorative Study .................................................................155
Filippo Ricca and Alessandro Marchetto

Session VI - Architecture Recovery

Improving Automated Mapping in Reflexion Models Using Information Retrieval Techniques .................................................................163
Roberto Almeida Bittencourt, Gustavo Jansen de Souza Santos, Dalton Dario Serey Guerrero, 
and Gail C. Murphy

Architectural Analysis of Systems Based on the Publisher-Subscriber Style .................................................................173
Dharmalingam Ganesan, Mikael Lindvall, Lamont Ruley, Robert Wiegand, Vuong Ly, and Tina Tsui

Computer-Aided Extraction of Software Components .................................................................183
Andreas Marx, Fabian Beck, and Stephan Diehl

Session VII - Remodularization and Reengineering

Software Re-Modularization Based on Structural and Semantic Metrics .................................................................195
Gabriele Bavota, Andrea De Lucia, Andrian Marcus, and Rocco Oliveto

An Abstraction-Oriented, Path-Based Approach for Analyzing Object Equality in Java .................................................................205
Chandan R. Rupakheti and Daqing Hou

Identification of REST-like Resources from Legacy Service Descriptions .................................................................215
Michael Athanasopoulos and Kostas Kontogiannis

Umplification: Refactoring to Incrementally Add Abstraction to a Program .................................................................220
Timothy C. Lethbridge, Andrew Forward, and Omar Badreddin
Session VIII – Code Clone Detection

Enhancing Source-Based Clone Detection Using Intermediate Representation .................................................. 227
Gehan M.K. Selim, King Chun Foo, and Ying Zou

Highly Configurable and Extensible Code Clone Detection .................................................................................. 237
Benjamin Biegel and Stephan Diehl

From Whence It Came: Detecting Source Code Clones by Analyzing Assembler ........................................... 242
Ian J. Davis and Michael W. Godfrey

Session IX – Mining Software Repositories 2

Predicting Re-opened Bugs: A Case Study on the Eclipse Project ................................................................. 249
Emad Shihab, Akinori Ihara, Yasutaka Kamei, Walid M. Ibrahim, Masao Ohira, Bram Adams,
Ahmed E. Hassan, and Ken-ichi Matsumoto

A Case Study of Bias in Bug-Fix Datasets ........................................................................................................ 259
Thanh H.D. Nguyen, Bram Adams, and Ahmed E. Hassan

Mining Collaboration Patterns from a Large Developer Network .................................................................. 269
Didi Surian, David Lo, and Ee-Peng Lim

Workshops

Workshop on Mining Unstructured Data (MUD) because “Mining Unstructured Data is Like Fishing in Muddy Waters”! ........................................................................................................... 277
Nicolas Bettenburg and Bram Adams

Workshop on Program Comprehension through Dynamic Analysis (PCODA10) ........................................... 279
Abdelwahab Hamou-Lhadj, David Rothlisberger, Andy Zaidman, and Orla Greevy

International Workshop on Processes for Software Evolution and Maintenance (WoSEMP 2010) .................. 281
Mira Kajko-Mattsson and Alain April

Doctoral Symposium

Improving Source Code Quality through the Definition of Linguistic Antipatterns .................................... 285
Venera Arnaoudova

Conformance Checking during Software Evolution ......................................................................................... 289
Roberto Almeida Bittencourt

Multi-Language and Heterogeneously-licensed Software Analysis ................................................................ 293
Ferdaous Boughanmi

Linguistic Driven Refactoring of Source Code Identifiers ............................................................................. 297
LaLeh Monastvi Eshkevari

Automatic Derivation of Concepts Based on the Analysis of Source Code Identifiers .................................... 301
Latifa Guerrouj

Software Process Recovery: Recovering Process from Artifacts .................................................................. 305
Abram Hindle

Improving System Testability and Testing with Microarchitectures ............................................................ 309
Aminata Sabané

Author Index .................................................................................................................................................. 313