Table of Contents

Message from the General Chair and Program Chairs ........................................... x
Organizing Committee .................................................................................................. xii
Program Committee ...................................................................................................... xiii
Additional Reviewers ..................................................................................................... xv
Keynotes ....................................................................................................................... xvi
Invited Talk .................................................................................................................... xviii

Concept and Feature Location
Clustering Support for Static Concept Location in Source Code ........................................ 1
  Giuseppe Scanniello and Andrian Marcus

Can Better Identifier Splitting Techniques Help Feature Location? ........................................ 11
  Bogdan Dit, Latifa Guerrouj, Denys Poshyvanyk, and Giuliano Antoniol

Improving IR-based Traceability Recovery Using Smoothing Filters ........................................ 21
  Andrea De Lucia, Massimiliano Di Penta, Rocco Oliveto, Annibale Panicella,
  and Sebastiano Panichella

Empirical Studies of Programmers
The Influence of the Task on Programmer Behaviour ..................................................... 31
  Annie T.T. Ying and Martin P. Robillard

Precise and Scalable Querying of Syntactical Source Code Patterns Using Sample Code Snippets and a Database ......................................................... 41
  Oleksandr Panchenko, Jan Karstens, Hasso Plattner, and Alexander Zeier

Is Aspect-Oriented Programming a Rewarding Investment into Future Code Changes? A Socio-technical Study on Development and Maintenance Time ........................................ 51
  Stefan Endrikat and Stefan Hanenberg
Automated Support for Program Comprehension

SmartGroups: Focusing on Task-Relevant Source Artifacts in IDEs .................................................. 61
David Röthlisberger, Oscar Nierstrasz, and Stéphane Ducasse

Generating Parameter Comments and Integrating with Method Summaries ........................................ 71
Giriprasad Sridhara, Lori Pollock, and K. Vijay-Shanker

Design Defects Detection and Correction by Example ........................................................................ 81
Marouane Kessentini, Wael Kessentini, Houari Sahraoui, Mounir Boukadoum, and Ali Ouni

Collaborative Program Comprehension

Obstacles in Using Frameworks and APIs: An Exploratory Study of Programmers' Newsgroup Discussions .................................................................................................. 91
Daqing Hou and Lin Li

Collective Code Bookmarks for Program Comprehension ..................................................................... 101
Anja Guzzi, Lile Hattori, Michele Lanza, Martin Pinzger, and Arie van Deursen

Trust-Based Requirements Traceability ................................................................................................ 111
Nasir Ali, Yann-Gaël Guéhéneuc, and Giuliano Antoniol

Aspect-Oriented Programming

AspectMaps: A Scalable Visualization of Join Point Shadows ............................................................... 121
Johan Fabry, Andy Kellens, and Stéphane Ducasse

Reasoning about Faults in Aspect-Oriented Programs: A Metrics-Based Evaluation .............................. 131
Rachel Burrows, François Taïani, Alessandro Garcia, and Fabiano Cutigli Ferrari

Comparison of a Visual and a Textual Notation to Express Data Constraints in Aspect-Oriented Join Point Selections: A Controlled Experiment ................................................. 141
Dominik Stein and Stefan Hanenberg

Software Evolution

Exploring Large-Scale System Similarity Using Incremental Clone Detection and Live Scatterplots ............ 151
James R. Cordy

Software Evolution Comprehension: Replay to the Rescue .................................................................... 161
Lile Hattori, Marco D'Ambros, Michele Lanza, and Mircea Lungu

Feature Profiling for Evolving Systems .................................................................................................. 171
Elmar Juergens, Martin Feilkas, Markus Herrmannsdoerfer, Florian Deissenboeck, Rudolf Vaas, and Karl-Heinz Prommer
Short Papers

MTF: A Scalable Exchange Format for Traces of High Performance Computing Systems
Luay Alawneh and Abdelwahab Hamou-Lhadj

A Lightweight Approach to Uncover Technical Artifacts in Unstructured Data
Nicolas Bettenburg, Bram Adams, Ahmed E. Hassan, and Michel Smidt

On Visualization and Comprehension of Scenario-Based Programs
Nir Eitan, Michal Gordon, David Harel, Assaf Marron, and Gera Weiss

Faceted Navigation for Software Exploration
Nan Niu, Anas Mahmoud, and Xiaoyong Yang

Subvocalization - Toward Hearing the Inner Thoughts of Developers
Chris Parnin

Adding Process Metrics to Enhance Modification Complexity Prediction
Gabriella Tóth, Ádám Zoltán Végh, Árpád Beszédes, and Tibor Gyimóthy

Capturing Expert Knowledge for Automated Configuration Fault Diagnosis
Mengliao Wang, Xiaoyu Shi, and Kenny Wong

Posters

Change Impact Analysis: An Earthquake Metaphor
Salima Hassaine, Ferdaous Boughanmi, Yann-Gaël Guéhéneuc, Sylvie Hamel, and Giuliano Antoniol

Programming from the Reader's Perspective: Toward an Expectations Approach
Gayani Samaraweera, Macneil Shonle, and John Quarles

Toward Intuitive Programming Languages
Andreas Stefik, Susanna Siebert, Kim Slattery, and Melissa Stefik

Industrial Case Study on Supporting the Comprehension of System Behaviour under Load
Mark D. Syer, Bram Adams, and Ahmed E. Hassan

Tool Demonstrations

DebCheck: Efficient Checking for Open Source Code Clones in Software Systems
James R. Cordy and Chanchal K. Roy

The NiCad Clone Detector
James R. Cordy and Chanchal K. Roy
Anomaly Detection by Monitoring Filesystem Activities
Liang Huang and Kenny Wong

SeClone - A Hybrid Approach to Internet-Scale Real-Time Code Clone Search
Iman Keivanloo, Juergen Rilling, and Philippe Charland

The Concept of Stratified Sampling of Execution Traces
Heidar Pirzadeh, Sara Shanian, Abdelwahab Hamou-Lhadj, and Ali Mehrabian

Industrial Challenge
Industrial Program Comprehension Challenge 2011: Archeology and Anthropology of Embedded Control Systems
Andrew Begel and Jochen Quante

Student Symposium
Trustrace: Improving Automated Trace Retrieval through Resource Trust Analysis
Nasir Ali

On the Effect of the Query in IR-based Concept Location
Sonia Haiduc and Andrian Marcus

Scalable Automatic Concept Mining from Execution Traces
Soumaya Medini

An Empirical Study of the Impacts of Clones in Software Maintenance

Towards a Benchmark and Automatic Calibration for IR-Based Concept Location
Scott David Ohlemacher and Andrian Marcus

Satisfying Programmers' Information Needs in API-Based Programming
Chandan Raj Rupakheti and Daqing Hou

A Systematic Analysis of Software Architecture Visualization Techniques
Zohreh Sharafi

Context and Vision: Studying Two Factors Impacting Program Comprehension
Zéphyrin Soh

Modeling Framework API Evolution as a Multi-objective Optimization Problem
Wei Wu
Conflict-Aware Optimal Scheduling of Code Clone Refactoring: A Constraint Programming Approach

Minhaz F. Zibran and Chanchal K. Roy

Author Index