Table of Contents

1st International Symposium on Search Based Software Engineering
SSBSE 2009

Message from the General Chair .......................................................... vii
Message from the Program Co-chairs....................................................... xi
SSBSE 2009 Committees........................................................................... xiii
Program Schedule.................................................................................... xv

Keynote Speakers

Model-Driven Development and Search-Based Software Engineering: An Opportunity for Research Synergy .......................................................... xvi
Lionel C. Briand

Not Your Grandmother’s Genetic Algorithm .............................................. xvii
David E. Goldberg

How Can Metaheuristics Help Software Engineers .................................... xviii
Enrique Alba

Software Engineering Experts’ Panel....................................................... xix

Session 1- Testing and Defect Prediction

Search-Based Testing of Ajax Web Applications............................................ 3
Alessandro Marchetto and Paolo Tonella

An Improved Meta-heuristic Search for Constrained Interaction Testing ........................................... 13
Brady J. Garvin, Myra B. Cohen, and Matthew B. Dwyer

Evolution and Search Based Metrics to Improve Defects Prediction .................. 23
Segla Kpodjedo, Filippo Ricca, Giuliano Antoniol, and Philippe Galinier

Session 2- PhD Student Track

Search-Based Prediction of Fault Count Data.............................................. 35
Wasif Afzal, Richard Torkar, and Robert Feldt

On Search Based Software Evolution....................................................... 39
Andrea Arcuri

Local Search-Based Refactoring as Graph Transformation ....................... 43
Fawad Qayum and Reiko Heckel
Session 3- Software Evolution

A Study of the Multi-objective Next Release Problem .......................................................... 49
Juan J. Durillo, YuanYuan Zhang, Enrique Alba, and Antonio J. Nebro

Dynamic Architectural Selection: A Genetic Algorithm Based Approach .................................. 59
Dongsun Kim and Sooyong Park

On the Use of Discretized Source Code Metrics for Author Identification .................................. 69
Maxim Shevertalov, Jay Kothari, Edward Stehle, and Spiros Mancoridis

Session 4- Short Papers

Search-Based Testing with in-the-loop Systems ........................................................................ 81
Joachim Wegener and Peter M. Kruse

A Testability Transformation Approach for State-Based Programs ........................................... 85
AbdulSalam Kalaji, Robert Mark Hierons, and Stephen Swift

Searching for Rules to find Defective Modules in Unbalanced Data Sets ..................................... 89
Daniel Rodriguez, Jesús C. Riquelme, Roberto Ruiz, and Jesús S. Aguilar-Ruiz

Formal Model Simulation: Can It be Guided? .............................................................................. 93
Thang H. Bui and Albert Nymeyer

How Can Optimization Models Support the Maintenance of Component-Based Software? ........ 97
Vittorio Cortellessa and Pasqualina Potena

Session 5- Testing

WCET Analysis of Modern Processors Using Multi-Criteria Optimisation .................................. 103
Usman Khan and Iain Bate

Full Theoretical Runtime Analysis of Alternating Variable Method on the Triangle Classification
Problem ........................................................................................................................................ 113
Andrea Arcuri

Widening the Goal Posts: Program Stretching to Aid Search Based Software Testing ................. 122
Kamran Ghani and John A. Clark

Author Index .................................................................................................................................. 132