Contents

Invited Talk

Programming with “Big Code” ............................................. 3
  Eran Yahav

Compilers

Memory-Efficient Tail Calls in the JVM with Imperative
  Functional Objects ................................................... 11
  Tomáš Tauber, Xuan Bi, Zhiyuan Shi, Weixin Zhang, Huang Li,
  Zhenrui Zhang, and Bruno C.d.S. Oliveira

A Secure Compiler for ML Modules ................................. 29
  Adriaan Larmuseau, Marco Patrignani, and Dave Clarke

Detection of Redundant Expressions: A Complete and Polynomial-Time
  Algorithm in SSA ................................................... 49
  Rekha R. Pai

Separation Logic

Separation Logic with Monadic Inductive Definitions
  and Implicit Existentials ........................................... 69
  Makoto Tatsuta and Daisuke Kimura

Tree-Like Grammars and Separation Logic .......................... 90
  Christoph Matheja, Christina Jansen, and Thomas Noll

Static Analysis and Abstract Interpretation

Randomized Resource-Aware Path-Sensitive Static Analysis .......... 111
  Tomasz Dudziak

Quadratic Zonotopes: An Extension of Zonotopes to Quadratic Arithmetics .... 127
  Assalé Adjé, Pierre-Loïc Garoche, and Alexis Werey

Abstraction of Optional Numerical Values ............................ 146
  Jiangchao Liu and Xavier Rival
Hoare Logic and Types

Fault-Tolerant Resource Reasoning ................................. 169
  Gian Ntzik, Pedro da Rocha Pinto, and Philippa Gardner

Shifting the Blame: A Blame Calculus with Delimited Control .......... 189
  Taro Sekiyama, Soichiro Ueda, and Atsushi Igarashi

Aliasing Control in an Imperative Pure Calculus ...................... 208
  Marco Servetto and Elena Zucca

Functional Programming and Semantics

A Strong Distillery .................................................. 231
  Beniamino Accattoli, Pablo Barenbaum, and Damiano Mazza

From Call-by-Value to Interaction by Typed Closure Conversion ....... 251
  Ulrich Schöpp

Kripke Open Bisimulation: A Marriage of Game Semantics and Operational Techniques ........................................ 271
  Guilhem Jaber and Nicolas Tabareau

Model Checking

Automata-Based Abstraction for Automated Verification of Higher-Order Tree-Processing Programs ................................ 295
  Yuma Matsumoto, Naoki Kobayashi, and Hiroshi Unno

Decision Algorithms for Checking Definability of Order-2 Finitary PCF .... 313
  Sadaaki Kawata, Kazuyuki Asada, and Naoki Kobayashi

Program Analysis - I

Uncovering JavaScript Performance Code Smells Relevant to Type Mutations .................................................. 335
  Xiao Xiao, Shi Han, Charles Zhang, and Dongmei Zhang

Analyzing Distributed Multi-platform Java and Android Applications with ShadowVM ........................................... 356
  Haiyang Sun, Yudi Zheng, Lubomir Bulej, Stephen Kell, and Walter Binder

Medley

Quasi-Linearizability is Undecidable ................................. 369
  Chao Wang, Yi Lv, Gaoang Liu, and Peng Wu
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objects in Polynomial Time</td>
<td>387</td>
</tr>
<tr>
<td><em>Emmanuel Hainry and Romain Péchoux</em></td>
<td></td>
</tr>
<tr>
<td><strong>Programming Models</strong></td>
<td></td>
</tr>
<tr>
<td>Programming Techniques for Reversible Comparison Sorts</td>
<td>407</td>
</tr>
<tr>
<td><em>Holger Bock Axelsen and Tetsuo Yokoyama</em></td>
<td></td>
</tr>
<tr>
<td>Transactions on Mergeable Objects</td>
<td>427</td>
</tr>
<tr>
<td><em>Deepthi Devaki Akkoorath and Annette Bieniusa</em></td>
<td></td>
</tr>
<tr>
<td>A Sound Type System for Layer Subtyping and Dynamically Activated</td>
<td>445</td>
</tr>
<tr>
<td>First-Class Layers</td>
<td></td>
</tr>
<tr>
<td><em>Hiroaki Inoue and Atsushi Igarashi</em></td>
<td></td>
</tr>
<tr>
<td><strong>Program Analysis - II</strong></td>
<td></td>
</tr>
<tr>
<td>Bottom-Up Context-Sensitive Pointer Analysis for Java</td>
<td>465</td>
</tr>
<tr>
<td><em>Yu Feng, Xinyu Wang, Isil Dillig, and Thomas Dillig</em></td>
<td></td>
</tr>
<tr>
<td>More Sound Static Handling of Java Reflection</td>
<td>485</td>
</tr>
<tr>
<td><em>Yannis Smaragdakis, George Balatsouras, George Kastrinis, and Martin Bravenboer</em></td>
<td></td>
</tr>
<tr>
<td><strong>Author Index</strong></td>
<td>505</td>
</tr>
</tbody>
</table>
Programming Languages and Systems
13th Asian Symposium, APLAS 2015, Pohang, South Korea, November 30 - December 2, 2015, Proceedings
Feng, X.; Park, S. (Eds.)
2015, XIX, 506 p. 133 illus. in color., Softcover
ISBN: 978-3-319-26528-5