APLAS – CPP 2012 Program

December 11 (Tuesday)

9:30  Registration
10:00 Opening
10:15  APLAS Invited talk by Jan Vitek (chair: Ranjit Jhala)
      “Planet Dynamic or: How I Learned to Stop Worrying and Love Reflection”
11:15  (Short break)
11:30  APLAS Session 1: Concurrency (chair: Aquinas Hobor)
      Siliang Li, Yu David Liu and Gang Tan: “JATO: Native Code Atomicity for Java”
      Yi Lu, John Potter and Jingling Xue: “Ownership Types for Object Synchronisation”
12:20  (Lunch break)
14:00  APLAS Session 2: Security (chair: Steve Zdancewic)
      Lennart Beringer: “End-to-end multilevel hybrid information flow control”
      Thomas Austin, Cormac Flanagan and Martín Abadi:
      “A Functional View of Imperative Information Flow”
      Radha Jagadeesan, Corin Pitcher and James Riely:
      “Succour to the Confused Deputy: Types for Capabilities”
      Aseem Rastogi, Avik Chaudhuri and Rob Johnson:
      “Types and Access Controls for Cross-Domain Security in Flash”
15:40  (Break)
16:10  APLAS Session 3: Static Analysis I (chair: Thomas Jensen)
      Giulia Costantini, Pietro Ferrara and Agostino Cortesi:
      “Linear approximation of continuous systems with Trapezoid Step Functions”
      Jorge Navas, Peter Schachte, Harald Sondergaard and Peter Stuckey:
      “Signedness-Agnostic Program Analysis: Precise Integer Bounds for Low-Level Code”
      Pascal Sotin and Xavier Rival:
      “Hierarchical Shape Abstraction of Dynamic Structures in Static Blocks”
      Krystof Hoder, Andreas Holzer, Laura Kovacs and Andrei Voronkov Vinter:
      “A Vampire-Based Tool for Interpolation (tool)”
17:50  (Day 1 over)

December 12 (Wednesday) morning

9:15  APLAS Session 4: Static Analysis II (chair: Tachio Terauchi)
      Kalmer Apinis, Helmut Seidl and Vesal Vojdani:
      “Side-Effecting Constraint Systems: A Swiss Army Knife for Program Analysis”
      Mehdi Bouaziz, Francesco Logozzo and Manuel Fahndrich:
      “Inference of Necessary Field Conditions with Abstract Interpretation”
10:05  (Break)
10:40  APLAS Session 5: Language Design (chair: Keiko Nakata)
      Oleg Kiselyov, Simon Peyton-Jones and Amr Sabry:
      “Lazy v. Yield: Incremental, Linear Pretty-printing”
      Gabrielle Anderson and Julian Rathke:
      “Dynamic Software Update for Message Passing Programs”
      Rémy Wyss, Frédéric Boniol, Julien Forget and Claire Pagetti:
      “A synchronous language with partial delay specification for real-time systems programming”
11:55  (Lunch break)
December 12 (Wednesday) afternoon

14:00 APLAS Session 6: Dynamic Analysis (chair: Atsushi Igarashi)
Niloo Far Razavi, Franjo Ivancic, Vineet Kahlon and Aarti Gupta:
“Concurrent Test Generation using Concolic Multi-Trace Analysis”
Lukáš Marek, Yudi Zheng, Danilo Ansaloni, Aibek Sarimbekov, Walter Binder,
Petr Tůma and Zhengwei Qi:
“Java Bytecode Instrumentation Made Easy: The DiSL Framework for Dynamic Program Analysis (tool)”

14:50 APLAS Poster and Demo Session
Francois Berenger, Arnout Voet and Kam Y. J. Zhang:
“Parallelization of a Computer Aided Drug Design Software with OCaml”
Aquinas Hob, Soe Lin Myat and Bimlesh Wadhwa:
“VisualizeSLE: A Visual Editor for Separation Logic Entailments”
Kanako Homizu, Ken Wakita and Akira Sasaki:
“A Proposal of Implementation Technique for Hygienic Syntactic Macro System for JavaScript”
Akimasa Morihata and Shigeyuki Sato: “Syntax-Directed Parallel Data Flow Analysis”
Haruna Nishiwaki, Tomoharu Ugawa, Seiji Umatani, Masahiro Yasugi and Taichí Yuasa:
“Detecting Bugs in Android Using a Static Escape Analyzer SEAN for Native Code”
Julian Rathke, Pawel Sobociński and Owen Stephens:
“ML kappa: Introducing Monoidal Categories to ML”
Idrisov Renat: “Sisal-based cloud service for educational and computation proposes”
Kanae Tsushima and Kenichi Asai: “An Embedded Type Debugger (demo)”
Masahiro Yasugi:
“Typed Construction of Cyclic Data Structures Using Provisional Assumptions”
Oleg Kiselyov: “Can generative programming deliver?”
Lukáš Marek, Yudi Zheng, Danilo Ansaloni, Aibek Sarimbekov, Walter Binder,
Petr Tůma and Zhengwei Qi:
“Java Bytecode Instrumentation Made Easy: The DiSL Framework for Dynamic Program Analysis (tool)”
Pascal Sotin and Xavier Rival:
“Hierarchical Shape Abstraction of Dynamic Structures in Static Blocks (demo)”
Mehdi Bouaziz, Francesco Logozzo and Manuel Fahndrich:
“Inference of Necessary Field Conditions with Abstract Interpretation”
Krystof Hoder, Andreas Holzer, Laura Kovacs and Andrei Voronkov:
“Vinter: A Vampire-Based Tool for Interpolation (demo)”

15:50 (Break)

16:20 APLAS Session 7: Semantics and Complexity (chair: Yukiyoshi Kameyama)
Aloïs Brunel and Antoine Madet:
“Indexed realizability for bounded-time programming with references and type fixpoints”
Martin Avanzini, Naohi Eguchi and Georg Moser:
“A New Order-theoretic Characterisation of the Polytime Computable Functions”
Marek Materzok and Dariusz Biernacki:
“A Dynamic Interpretation of the CPS Hierarchy”

17:35 (Day 2 over)
December 13 (Thursday)

9:10 Joint invited talk by Greg Morrisett (chair: Zhong Shao)  
“Scalable Formal Machine Models”
10:10 (Break)

10:35 APLAS Session 8: Program Logics and Theorem Provers (chair: Chung-Kil Hur)  
Yu Guo, Xinyu Feng, Zhong Shao and Peizhi Shi:  
“Modular Verification of Concurrent Thread Management”
David Costanzo and Zhong Shao:  
“A Case for Behavior-Preserving Actions in Separation Logic”
James Brotherston, Nikos Gorogiannis and Rasmus Petersen:  
“A Generic Cyclic Theorem Prover”
Xuan Bach Le, Cristian Gherghina and Aquinas Hobor:  
“Decision Procedures Over Sophisticated Fractional Permissions”
12:15 (Lunch Break)

14:00 Joint invited talk by Xavier Leroy (chair: Dale Miller)  
“Mechanized Semantics for Compiler Verification”
15:00 (Break)

15:30 CPP Session 1: Certified Compilation (chair: Chris Hawblitzel)  
Valentin Robert and Xavier Leroy: “A formally-verified alias analysis”
Jianzhou Zhao and Steve Zdancewic:  
“Mechanized Verification of Computing Dominators for Formalizing Compilers”
Dominic Mulligan and Claudio Sacerdoti Coen:  
“On the correctness of an optimising assembler for the MCS-51 microcontroller”
17:00 (Day 3 over)

19:00 APLAS – CPP Banquet at The Sodoh Higashiyama

December 14 (Friday) morning

9:10 CPP Invited Talk by Gilles Barthe (chair: Gerwin Klein)  
“Automation in Computer-Aided Cryptography: Proofs, Attacks and Designs”
10:10 (Break)

10:40 CPP Session 2: Execution and Testing (chair: Gerwin Klein)  
Brian Campbell: “An Executable Semantics for CompCert C”
Pierre-Nicolas Tolitte, David Delahaye and Catherine Dubois:  
“Producing Certified Functional Code from Inductive Specifications”
12:10 (Lunch break)
December 14 (Friday) afternoon

14:00 CPP Session 3: Operating Systems and Security (chair: Chris Hawblitzel)
   Andrei Popescu, Johannes Hölzl and Tobias Nipkow:
   “Proving concurrent noninterference”
   Toby Murray, Daniel Matichuk, Matthew Brassil, Peter Gammie and Gerwin Klein:
   “Noninterference for Operating System Kernels”
   Alexander Vaynberg and Zhong Shao:
   “Compositional Verification of a Baby Virtual Memory Manager”
15:30 (Break)

16:00 CPP Session 4: Elegant Proofs (chair: Zhong Shao)
   Keisuke Nakano: “Shall We Juggle, Coinductively?”
   Beniamino Accattoli:
   “Proof pearl: Abella formalization of lambda calculus cube property”
   Hing-Lun Chan and Michael Norrish:
   “A String of Pearls: Proofs of Fermat’s Little Theorem”
17:30 (Day 4 over)

December 15 (Saturday)

9:10 CPP Invited Talk by Naoki Kobayashi (chair: Georges Gonthier)
   “Program Certification by Higher-Order Model Checking”
10:10 (Break)

10:40 CPP Session 5: Logic and Types (chair: Dale Miller)
   Kaustuv Chaudhuri: “Compact Proof Certificates for Linear Logic”
   Christian Doczkal and Gert Smolka:
   “Constructive Completeness for Modal Logic with Transitive Closure”
   Andrea Asperti and Wilmer Ricciotti: “Rating Disambiguation Errors”
12:10 (Lunch break)

14:00 CPP Session 6: Mathematics (chair: Georges Gonthier)
   Pierre Neron:
   “A Formal Proof of Square Root and Division Elimination in Embedded Programs”
   Anders Mörtberg, Thierry Coquand and Vincent Siles:
   “Coherent and Strongly Discrete Rings in Type Theory”
   Sylvie Boldo, Catherine Lelay and Guillaume Melquiond:
   “Improving Real Analysis in Coq: a User-Friendly Approach to Integrals and Derivatives”