

MIRELA-ANDREEA COSTEA

andreeac@comp.nus.edu.sg
www.comp.nus.edu.sg/~andreeac

Phone: (+65) 8201 8179
15 Computing Drive, #04-04
Singapore 117418

EDUCATION

National University of Singapore Singapore
PhD Candidate in the Computer Science Dept. Aug 2012 - Present
Thesis Title: The Verification And Inference of Multiparty Session Protocols using Separation Logic
PhD Advisor: Assistant Professor Chin Wei-Ngan

”Politehnica” University of Timisoara Romania
BEng. in Automatics and Applied Informatics Sept 2004 - Aug 2009

RESEARCH INTERESTS

My research interests span over the areas of Programming Languages and formal methods. Spurred by the idea of making the software more robust I am particularly interested in the verification of critical systems.

EXPERIENCE

National University of Singapore Singapore
Research Assistant May 2010 to Jul 2012

- I was involved in the designing, developing and maintaining of HIP/SLEEK - an automated verification system based on separation logic for proving invalid memory access during compile time. The main programming language used in the developing process was OCaml.
- I have helped in developing HIP related projects such as: specialized OCaml debugging tool, proof logging tool, HIP testing tool.

National University of Singapore
Infocomm Development Authority of Singapore Singapore
Intern Aug 2009 to Feb 2010

- I have worked on a project which tackled the issue of fault-tolerance for MPI applications on cloud computing. The deliverable of the internship was a survey of fault-tolerance mechanisms, experimental analysis results and a proposal of a new fault-tolerance mechanism to be further investigated.

Ingress Software S.R.L. Timisoara, Romania
Software Developer - part time Nov 2006 to June 2009

- I have developed and maintained parts of ART, a trading software platform used by the Anglorand Financial Services Group, Johannesburg. More specifically, I have worked at the user interface of the real time trading application, on the online stock analysis, market watch, trade accounts management and the risk management tool. The main programming language used for developing ART was Java.

PUBLICATIONS

Certified Reasoning with Infinity, Asankhaya Sharma, Shengyi Wang, Andreea Costea, Aquinas Hobor, Wei-Ngan Chin. FM 2015: 496-513

Towards a Session Logic for Communication Protocols, Florin Craciun, Tibor Kiss, Andreea Costea. ICECCS 2015: 140-149

HIPimm - verifying granular immutability guarantees, Andreea Costea, Asankhaya Sharma, Cristina David: PEPM 2014: 189-194

SELECTED TALKS AND PRESENTATIONS

Towards a Session Logic for Communication Protocols, 17th International Conference on Formal Engineering Methods, Brisbane, Australia, Nov 2015

A Session Logic for Communication Protocols, Oracle Labs, Safety and Security Analysis team, Brisbane, Australia, Dec 2015

HIPimm: Verifying Granular Immutability Guarantees, Partial Evaluation and Program Manipulation, San Diego, California, Jan 2014

NUS TEACHING EXPERIENCE

CS3234 - Logic and Formal Systems	Guest Lecture and Tutorial, Spring 2016
CS3234 - Logic and Formal Systems	Guest Tutorial, Spring 2015
CS4215 - Programming Language Implementation	Teaching Assistant, Spring 2015
Science Mentorship Programme	NUS-SMP Co-Mentor, 2011

SELECTED GRADUATE COURSE PROJECTS

<i>Inter-procedural Taint Analysis for Java Programs</i>	Principles of Program Analysis
<i>Inter-procedural Exception Analysis for Java Programs</i>	Principles of Program Analysis
<i>SecHIP - Extending HIP to offer security guarantees</i>	Systems Security
<i>Analyze CubeCart for Security Vulnerabilities</i>	Web Security
<i>Implementation of a Simple Functional Language</i>	Programming Language Implementation

AWARDED SCHOLARSHIPS

NUS Research Scholarship, Aug 2012 - Aug 2016
SIGPLAN PAC Grants/POPL 2014
Programming Languages Mentoring Workshop Scholarship, 2013

OTHER ACTIVITIES

External Reviewer for: FM’10, VMCAI’12, CPP’12, SAS’13, ICFEM’13, FM’14, APLAS’14

Attended conferences: PLDI’12, POPL’13, POPL’14, PEPM’14, APLAS’14, FM’14, FM’15

I have been actively involved in the organization of APLAS’14

Participated at the Programming Languages Mentoring Workshop’13, Rome, Italy

Attendee at “Lets build our dream: Future Houses, New Challenges, New Solutions!”, Summer School, 20th Jul - 2nd Aug 2008, University of Coimbra, Portugal, Department of Science and Technology

Attendee at “European Week 2008 Sustainable growth and technological innovation: vicious or virtuous circle?”, Summer School, 8th - 16th Mar 2008, Suplec University, Paris, France