Gowtham Kaki
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Interests Program Logics, Type Systems and Static Analyses.

Education

Ph.D., Computer Science. 2012 - present
Advised by Prof. Suresh Jagannathan.
Purdue University, West Lafayette, IN.
Current GPA: 3.77/4.0

B.E.(Hons)., Computer Science. July, 2009
BITS, Pilani, India.
GPA: 8.68/10.0

Research

Relational Framework for Higher-order Shape Analysis
(With Suresh Jagannathan) Devised a verification framework based on decidable relational logics to automatically reason about catamorphisms in ML-like languages. The framework manifests as a dependent type system for ML and scales to higher-order programs by assigning "very general" (although not principal) types to higher-order functions. Our experience so far suggests that the method is quite useful to automatically verify partial correctness properties of compiler transformations. The current implementation of the framework is available online. Work-in-progress presentations have been delivered at

- Higher-Order Program Analysis (HOPA) Workshop, New Orleans, 28th-29th June, 2013.
- Mid-west Verification Day (MVD), Chicago, 20th-21st September, 2013.

A Novel Adaptive Scheduling Algorithm for Computational Grids
(With S. Bansal, and Chittaranjan Hota) Devised a de-centralized dynamic load balancing algorithm for efficient task scheduling in computational grids.

- IEEE conference on Internet Multimedia Systems Architecture and Applications (IMSAA), Bangalore, India, 2009.

Professional Experience

Software Engineer, Yahoo SDC, Bangalore, India August, 2009 - July, 2011
Frontend engineering for Yahoo content platforms group. Developed AJAX and php tools for querying, processing and presenting loosely-structured data from various content grids inside yahoo. The tools were used by Yahoo's content curators.

Engineering intern, Qualcomm, Hyderabad, India January, 2009 - June, 2009
QA Engineering for Application-specific integrated circuit (ASIC) - User interface module (UIM) group. Developed tools to test low-level mobile network code.

Academics

Relevant Graduate Coursework

- CS565 Programming Languages (analogoue of UPenn's Software Foundations with Coq), CS510 Software Engineering, EE570 Artificial Intelligence, and CS590 Current topics in Theoretical Computer Science.
- Attended Oregon Programming Languages Summer School (OPLSS'13) at Eugene, OR.

Teaching Assistanship

- CS240 C Programming. Fall 2012.
- CS565 Programming Languages. Spring, 2013.

Programming Languages

Standard ML, Ocaml, Scheme, C, Java, and Haskell (pure Haskell, to be precise. I am not yet comfortable with monadic types.).

Service

Coordinating weekly sessions of Purdue PL (PurPL) reading group. Notes/Slides for some sessions when I led the discussion are available on my web page.
Purdue CS Graduate Student Board (GSB) office member, Fall 2011 and Spring 2012. Secretary (junior year), and office member (freshman and sophomore years) of Computer Science Association (CSA) BITS, Pilani. We organized our techfest (APOGEE) in 2008.

References

Prof. Suresh Jagannathan (suresh@cs.purdue.edu).
Prof. Chittaranjan Hota (hota@hyderabad.bits-pilani.ac.in)
Other references will be available on request.