

Gowtham Kaki

<http://gowthamk.github.io>

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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: 3.6/4.0	
	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 structural properties in ML-like languages. The framework manifests as a dependent type system for ML and scales to higher-order programs by assigning "very general" 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 implementation of the framework (called CATALYST) is available online. <ul style="list-style-type: none">• International Conference on Functional Programming (ICFP), Gothenburg, 1th-6th September, 2014.• 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. <ul style="list-style-type: none">• IEEE conference on Internet Multimedia Systems Architecture and Applications (IMSAA), Bangalore, India, 2009.	
Professional Experience	Research Intern, Microsoft Research India, Bangalore	May - August, 2014
	(With G Ramalingam, K Vaswani, and D Vytiniotis) Built a region type system for Microsoft Dryad programs to ensure memory safety in presence of programmer-managed memory regions. Also developed a type inference algorithm that will automatically infer region types even in presence of higher-order functions. A paper describing the type system will be available from November, 2014.	
	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 - 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 (analogue 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 .

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 (Purdue University).
Dr. Ganesan Ramalingam (Microsoft Research) Other references will be available on request.