Mihir P Mehta

Department of Computer Science   +1 512-952-0104
University of Texas at Austin   mihir@cs.utexas.edu

Education	**Ph.D., Computer Science**, University of Texas at Austin.	(2014 - present)
	GPA: 3.3/4	(Spring 2017)
	B.Tech., Computer Science and Engineering, Indian Institute of Technology (IIT) Delhi.	(2009 - 2013)
	GPA: 7.9/10	
	Exchange semester, Ecole des Mines, Saint-Etienne.	(2011)

Professional Experience

Research Intern at Apple Computer, Inc., Austin, TX, USA.   (2017-present)
- Formally specifying and verifying microarchitectures for Apple's hardware designs.

Research Intern at Intel Corporation, Austin, TX, USA.   (2015)
- Built a Pintool to dynamically analyse executables.
- Augmented the analysis with fine-grained information obtained from static analysis techniques.

Software Engineer at Samsung Research Institute, Noida, India.   (2013-2014)
- Optimised the Linux kernel for Samsung's Android devices.
- Improved core components of the Linux virtual memory subsystem.

Research Experience

Filesystem modelling for CP/M with Professor Warren A. Hunt Jr., CS department, UT Austin.   (2016-present)
- Currently developing a model for the CP/M filesystem based on cpmtools by Michael Haardt.
- Using the ACL2 theorem prover to model system level routines in Lisp with mechanical proofs of several soundness properties.
- Using program refinement to iteratively build models with proofs of correctness.

Program verification in object-oriented languages with Professors Isil Dillig and Thomas Dillig, CS department, UT Austin.   (2014-2015)
- Developed a prototype verifier based on Hoare logic and weakest pre-conditions.
- Used the Soot compiler framework to generate verification conditions and the Z3 theorem prover to discharge them.
- Generated example inputs demonstrating bugs in several test programs.

Algorithms for bisimilarity with Professor S Arun Kumar, CSE Department, IIT Delhi   (2012-2013)
- Conceptualised and implemented a toolkit for verifying bisimilarity and other properties of timed automata and labelled transition systems.
- Improved an algorithm for generating a zone graph from a timed automaton.

Coursework (selected graduate courses)

UT Austin: Automated Logical Reasoning, Introduction to Mathematical Logic, Formal Verification and Semantics, Automatic Verification of Software, Numerical Linear Algebra, Dependable Computing Sytems, Recursion and Induction, Programming Languages (teaching assistant).
IIT Delhi : Compiler Design, Theory of Computation, Numerical Optimisation.

Technical Skills

Theorem provers: ACL2, Coq.
Programming languages: Functional languages (OCaml, SML),
logic programming languages (Prolog), hardware description languages (VHDL, Verilog).
Operating systems: GNU/Linux (kernel and application development).
Compiler frameworks: Soot (Java), LLVM (C++).
Others: Xilinx, Matlab, PostgreSQL.

Scholastic Achievements

- Awarded the UT Austin Graduate School's Recruitment Fellowship. (2014-2017)
- All India Rank 138 (out of 400000), Joint Entrance Examination (IIT-JEE). (2009)
- Secured All India Rank 29 in the All India Engineering Entrance Examination (AIEEE) among 1000000 candidates. (2009)
- Scored 99 percentile in Verbal and Analytical Reasoning, GRE. (2012)

Others

Languages: English, French, Gujarati, Hindi.