Ritwika Ghosh
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Profile :
I am a first year graduate student in Computer Science at the University of Illinois, Urbana-Champaign, interested in formal methods, and applications to embedded systems.

Research Interests :

- Verification Theory
- Applications of Formal Methods in Networks
- Quantifier Elimination
- Tools for Model Checking and Automated Theorem Proving
- Game theory and its applications to computer science

Educational Summary :

year	*degree*	*institution*
2013	MSc, Computer Science	Chennai Mathematical Institute
2011	BSc, Mathematics and Computer Science	Chennai Mathematical Institute

Achievements :

- Wing Kai Chen Fellowship 2013
- CS Departmental Excellence Fellowship 2013
- All India Rank 6315 Joint Entrance Examination 2007
- All India Rank 57 in All India Senior Secondary Central Examination 2005

Courses Relevant to areas of interest :

- Advanced Distributed Systems(Ongoing)
- Verification Theory(MSc)
- Logic(MSc)
- Theory of Computation(MSc)
- Game Theory Applications in Computer Science(MSc)

- Infinite Discrete Structures(MSc)
- Programming Language Concepts(BSc)
- Real World Verification(Quantifier Elimination) (MSc)

Other Courses in Mathematics and Computer Science :
Compilers, Program Verification, Programming in Haskell, Advanced Programming in C, Algorithms, Complexity theory,Concurrency theory, Linux Kernel, Computer Organization, Databases, Game Theory, Linear Algebra, Galois Theory, Ring and Field theory, Discrete maths, Real and complex analysis, Topology.

Research Experiences :

- Developing automated verification algorithms of progress properties in parameterized networks. (Ongoing)
- MSc thesis titled 'Satisfiability of Bit-Vector Constraint Systems' under the guidance of Prof. Supratik Chakraborty at Indian Institute of Technology Bombay (Jan-April 2013)
- Wrote a Parser for a Tool performing Quantifier Elimination in FO theory of Bit-Vectors at IIT Bombay (May - July 2012)
- Wrote a TCP over UDP protocol (in java) for a networks course (May-June 2011)
- Reading project on Software Transactional Memory and attempted to formulate a verification problem on it (May-July 2010)

Presentations :

- Quantifier Elimination in FO Theory of Reals (2013)
- FO theory of Bit-Vectors (2012).
- Caching and Paging in Linux(2012)
- Nim Games(2011)
- Non-emptiness of Core in Multi-player Coalitional Games (2010)

Technical Proficiency :

- Programming Languages : C, Java, Haskell, C++, HTML, CSS, Yacc(bison), Lex, Python, Latex, Matlab, R

- Verification Tools : Z3, Spin, UPPAAL
- Databases : MySQL, XML

Extra-Curricular Activities :

- Blue Belt in Taekwondo.
- Part of Editorial Board of CMI Magazine
- Founder member of a students' initiative to teach orphans at a Tsunami Relief Camp in Chennai.
- Trained in Hindustani Classical music(vocal) for 12 years.

References :

- Prof. S. Mitra, ECE Dept, University of Illinois at Urbana-Champaign, email: (smitra@illinois.edu)
- Prof. R. Ramanujam, Department of Theoretical Computer Science, Institute of Mathematical Sciences, email: (jam@imsc.res.in)
- Prof. Kamal Lodaya, Department of Theoretical Computer Science, Institute of Mathematical Sciences, email: (kamal@imsc.res.in)