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PhD Applicant, Computer Science Department

Research Interests

My research interests lie broadly in the areas of Programming Languages, Verification, and Software Engineering.

Education

2012–2015 **M.Sc(Engg), Computer Science**, *Indian Institute of Science*, Bangalore.

CGPA: 6.3/8, Advisor: Dr. Murali Krishna Ramanathan

Thesis: Efficient Instrumentation for Object Flow Profiling

2006–2010 **B.E, Computer Science**, *Coimbatore Institute of Technology*, Coimbatore.

CGPA - 9.24/10

Work Experience

2015–present **Research Fellow**, *Microsoft Research, India*, Bangalore.

Mentor: Dr. Akash Lal

2010–2012 **Software Engineer**, *Aricent Technologies*, Bangalore.

Conference Publications

ISSTA 2016 Rashmi Mudduluru, Murali Krishna Ramanathan, **Efficient Flow Profiling for Detecting Performance Bugs**, 25th International Symposium on Software Testing and Analysis, 2016.

FAST 2016 Pantazis Deligiannis, Matt McCutchen, Paul Thomson, Shuo Chen, Alastair F. Donaldson, John Erickson, Cheng Huang, Akash Lal, Rashmi Mudduluru, Shaz Qadeer, Wolfram Schulte, **Uncovering Bugs in Distributed Storage Systems during Testing (Not in Production!)**, 14th USENIX Conference on File and Storage Technologies, 2016.

ISSTA 2015 Monika Dhok, Rashmi Mudduluru, Murali Krishna Ramanathan, **Pegasus: Automatic Barrier Inference for Stable Multithreaded Systems**, 2015 International Symposium on Software Testing and Analysis.

FASE 2014 Rashmi Mudduluru, Murali Krishna Ramanathan, **Efficient Incremental Static Analysis Using Path Abstraction**, 17th International Conference on Fundamental Approaches to Software Engineering, 2014.

Selected Projects

- Implemented a dynamic data race detector for programs written in P#, a DSL for asynchronous programs. Dynamic instrumentation was done with the help of Extended Reflection, a library that facilitates inserting callbacks for MSIL instructions.
- Designed and built a profiler that tracks the precise data path taken by objects in Java programs. Implementation was done in Java on top of Calfuzzer/Soot framework.
- Built an incremental static analyzer on top of SATURN, a constraint based static analysis tool for finding bugs. Implementation was done in OCaml and Berkeley DB.
- Implemented a static null pointer dereference analysis tool for Java programs using the Soot bytecode analysis framework.

Graduate Courses

Program analysis and verification, Design and analysis of algorithms, Automata theory and computability, Topics in software bug detection, Automated verification.

Service

- Teaching Assistant for the graduate course *Automata Theory and Computability*.
- Student volunteer at *International Conference on Software Engineering (ICSE) 2014*.

Awards and Scholarships

- ACM SIGSOFT Distinguished paper award for the paper *Efficient Flow Profiling for Detecting Performance Bugs* at ISSTA 2016.
- Received the PLMW scholarship for attending POPL 2015.
- Secured 99.7 percentile in Graduate Aptitude Test in Engineering (GATE) 2012.

References

Dr. Akash Lal
Senior Researcher,
Microsoft Research, India,
<https://www.microsoft.com/en-us/research/people/akashl/>

Dr. Murali Krishna Ramanathan
Assistant Professor, Department of Computer Science and Automation,
Indian Institute of Science,
<http://drona.csa.iisc.ac.in/~muralikrishna/>

Dr. Deepak D'Souza
Associate Professor, Department of Computer Science and Automation,
Indian Institute of Science,
<http://drona.csa.iisc.ernet.in/~deepakd/>