

APOORVE MOHAN

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RESEARCH INTEREST

Broadly, I am interested in *Systems and Networking*. My current research revolves around mitigating bare metal resource inefficiency in Cloud/HPC data centers.

EDUCATION

Northeastern University

- Ph.D. Computer Engineering (*Advisor: Prof. Gene Cooperman*) 2014 - Present

University of Delhi

- M.Sc. Computer Science 2009 - 2011

- B.Sc. (Hons.) Computer Science 2006 - 2009

WORK EXPERIENCE

Research Student

2015 - Present

Massachusetts Open Cloud, Boston

Advisors: Prof. Orran Krieger, Prof. Peter Desnoyers, Dr. Ata Turk

- Projects: Elastic secure infrastructure, Non-intrusive bare-metal introspection

Research Assistant

2014 - Present

Khoury College of Computer Sciences, Northeastern University, Boston

Advisor: Prof. Gene Cooperman

- Project: Efficient batch processing using user-space checkpoint-restart

Summer Research Intern

2017, 2018

IBM Research T.J. Watson, Yorktown Heights

Mentor: Dr. Gheroghe Almasi

- Projects: Dynamic partitioning of data centers at the bare-metal layer,
Analyzing system bottlenecks for distributed DNN training in commodity data centers

Teaching Assistant (Fall)

2016

Khoury College of Computer Science, Northeastern University, Boston

- CS 5600 Computer Systems (*Graduate*)

- CS 3650 Computer Systems (*Undergraduate*)

Project Associate, Indian Institute of Technology, Delhi

2012 - 2014

Advisors: Prof. Huzur Saran, Prof. Sorav Bansal

- Involved in design and development of an academic cloud (<https://baadal.nmeict.in>)

Guest Lecturer, Maharaja Agrasen College, University of Delhi

2012 - 2013

- C++, MIPS, and Shell Programming, and Computer Fundamentals (*Undergraduate*)

Software Developer, One97 Communications Ltd., NOIDA

2011 - 2012

- Java-based full-stack development

REFEREED PUBLICATIONS

- A.Mohan, S.Tikale, M.Abdi, M.H.Hajkazemi, G.Almasi, M.Silva, G.Cooperman, P.Desnoyers, O.Krieger, A.Turk, [Improving Resource Efficiency in Consolidated Data Centers](#) (In Progress)
- A.Mohan, R.Garg, D.Tiwari, G.Cooperman, [Improved Batch Processing in the Cloud by Mitigating Resource Congestion on Multi-Core Systems](#) (In Progress)
- A.Mossayebzadeh, A.Mohan, S.Tikale, A.Raza, N.Scheer, T.Hudson, C.Munson, L.Rudolph, G.Cooperman, P.Desnoyers, O.Krieger, [Tenant Controlled Security for Bare-Metal Clouds](#) (Under Review)

- **A.Mohan**, S.Nadgowda, B.Pipaliya, S.Varma, S.Suneja, C.Isci, G.Cooperman, P.Desnoyers, O.Krieger, A.Turk, [NiBi: Non-Intrusive Bare-Metal Introspection](#) (Under Review)
- R.Garg, **A.Mohan**, M.Sullivan, G.Cooperman, [CRUM: Checkpoint-Restart Support for CUDA's Unified Memory](#) (IEEE Cluster 2018)
- A.Mossayebzadeh, G.Ravago, **A.Mohan**, A.Raza, S.Tikale, N.Shear, T.Hudson, J.Hennessey, N.Ansari, K.Hogan, C.Munson, L.Rudolph, G.Cooperman, P.Desnoyers, O.Krieger, [A Secure Cloud with Minimal Provider Trust](#) (USENIX HotCloud 2018)
- **A.Mohan**, A.Turk, R.S.Gudimetla, S.Tikale, J.Hennessey, U.Kaynar, G.Cooperman, P.Desnoyers, O.Krieger, [M2: Malleable Metal as a Service](#) (IEEE IC2E 2018)

TECHNICAL EXPOSURE

Programming and Scripting: Python, C/C++, Bash, Java

Parallel and Cluster Computing: pthreads, OpenMP, OpenMPI, CUDA, SLURM

System Profiling: perf, sysstat, tcpdump, fio, strace, ptrace, gdb

Cloud and Virtualization: OpenStack, KVM, QEMU, libvirt

Deep Learning: Caffe, Alexnet, Imagenet

Databases: MySQL, SQLite, PostgreSQL

Storage: Ceph, Software iSCSI (TGT/IET), RAID

Web: JavaScript, HTML, Web2py, CSS, JQuery, REST

TALKS AND POSTERS

- Agentless Bare-Metal Introspection (MassOpenCloud Annual Workshop 2018)
- Recycling Lost CPU Cycles (New England Network and Systems Day 2017)
- Marrying Cloud and HPC for Long-Term Happiness (IBM Research Workshop 2017)
- Elastic OpenStack Deployments (OpenStack Summit-Boston 2017)
- Bare Metal Imaging (MassOpenCloud Annual Workshop 2016)
- Marrying Cloud and HPC for Long-Term Happiness (Supercomputing Conference 2016)