

APOORVE MOHAN

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SUMMARY

Current research focuses on *improving bare-metal resource efficiency*, which includes the following projects: (a) enabling rapid and secure time-multiplexing of bare-metal servers across co-located clusters to improve aggregate resource efficiency in centralized data centers; (b) non-intrusive software introspection strategy for bare-metal clusters; (c) node-level job co-location strategy that leverages user-space application-transparent checkpoint-restart mechanism to improve throughput in batch clusters.

EDUCATION

Northeastern University

- Ph.D. Computer Engineering (*GPA: 3.92/4.00*) *2014 - Present*
- Thesis Advisor(s): Prof. Gene Cooperman, Prof. Orran Krieger

University of Delhi

- M.Sc. Computer Science *2009 - 2011*
- B.Sc. (Hons.) Computer Science *2006 - 2009*

SELECTED PUBLICATIONS

[Towards Non-intrusive Software Introspection and Beyond](#), **A.Mohan**, S.Nadgowda, B.Pipaliya, S.Varma, S.Suneja, C.Isci, G.Cooperman, P.Desnoyers, O.Krieger, A.Turk *(IEEE IC2E 2020)*

[Supporting Security Sensitive Tenants in a Bare-Metal Cloud](#), A.Mossayebzadeh, **A.Mohan**, S.Tikale, M.Abdi, N.Shear, T.Hudson, C.Munson, L.Rudolph, G.Cooperman, P.Desnoyers, O.Krieger *(USENIX ATC 2019)*
(*Co-first Author*)

[M2: Malleable Metal as a Service](#), **A.Mohan**, A.Turk, R.S.Gudimetla, S.Tikale, J.Hennessey, G.Cooperman, P.Desnoyers, O.Krieger *(IEEE IC2E 2018)*

RESEARCH EXPERIENCE

Summer Research Intern

2017, 2018

IBM Research T.J. Watson, Yorktown Heights

Mentor: Dr. Gheorghe Almasi

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

Research Student

2015 - Present

Massachusetts Open Cloud, Boston

Advisor: Prof. Orran Krieger

- Projects: Elastic secure infrastructure, Non-intrusive bare-metal introspection, Bare-metal resource utilization control system.

Graduate 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.

OTHER EXPERIENCE

Project Mentor (Spring)

2018

Khoury College of Computer Science, Northeastern University, Boston

- CS 6620 Cloud Computing (*Graduate*)

Teaching Assistant (Fall)

2016

Khoury College of Computer Science, Northeastern University, Boston

- CS 5600 Computer Systems (*Graduate*)
- CS 3650 Computer Systems (*Undergraduate*)

Project Associate

2012 - 2014

Indian Institute of Technology, Delhi

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

Guest Lecturer

Spring, Fall 2013

Maharaja Agrasen College, University of Delhi

- Introduction to Programming, Introduction to Computer Fundamentals (*Undergraduate*)

Assistant Professor (Adhoc)

Fall 2012

Maharaja Agrasen College, University of Delhi

- Introduction to Programming, Introduction to Computer Fundamentals (*Undergraduate*)

Software Developer

2011 - 2012

One97 Communications Ltd., NOIDA

- Developed a parallel batch processing service for provisioning cellular phone numbers to different value-added services (both backend and frontend).

PRESENTATIONS

Using Elastic Secure Infrastructure in Centralized Environments	<i>(Open Cloud Workshop 2020)</i>
Agentless Bare-Metal Introspection	<i>(Mass Open Cloud Workshop 2018)</i>
Marrying Cloud and HPC for Long-Term Happiness	<i>(IBM Research Workshop 2017)</i>
Elastic OpenStack Deployments	<i>(OpenStack Summit-Boston 2017)</i>
Bare Metal Imaging	<i>(Mass Open Cloud Workshop 2016)</i>

POSTERS

Recycling Lost CPU Cycles	<i>(New England Network and Systems Day 2017)</i>
Marrying Cloud and HPC for Long-Term Happiness	<i>(Supercomputing Conference 2016)</i>