

# APOORVE MOHAN

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## SUMMARY

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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

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### 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

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[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

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### Summer Research Intern

*IBM Research T.J. Watson, Yorktown Heights* *2017, 2018*  
*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

*Massachusetts Open Cloud, Boston* *2015 - Present*  
*Advisor: Prof. Orran Krieger*

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

### Graduate Research Assistant

*Khoury College of Computer Sciences, Northeastern University, Boston* *2014 - Present*  
*Advisor: Prof. Gene Cooperman*

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

## OTHER EXPERIENCE

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### Project Mentor (Spring)

*Khoury College of Computer Science, Northeastern University, Boston* *2018*  
- CS 6620 Cloud Computing (*Graduate*)

### Teaching Assistant (Fall)

*Khoury College of Computer Science, Northeastern University, Boston* *2016*

- 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**

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**Using Elastic Secure Infrastructure in Centralized Environments** (*Open Cloud Workshop 2020*)

**Agentless Bare-Metal Introspection** (*Mass Open Cloud Workshop 2018*)

**Marrying Cloud and HPC for Long-Term Happiness** (*IBM Research Workshop 2017*)

**Elastic OpenStack Deployments** (*OpenStack Summit-Boston 2017*)

**Bare Metal Imaging** (*Mass Open Cloud Workshop 2016*)

**POSTERS**

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**Recycling Lost CPU Cycles** (*New England Network and Systems Day 2017*)

**Marrying Cloud and HPC for Long-Term Happiness** (*Supercomputing Conference 2016*)