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 effiency 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.Schear, 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 a *Do-Not-Disturb* list for offered value-added services (both backend and frontend).

PRESENTATIONS

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

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

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