Apoorve Mohan

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RESEARCH INTERESTS

Broadly, I am interested in **Systems and Networking**

- My current research revolves around improving resource efficiency in bare-metal clouds/clusters.

EDUCATION

Northeastern University Sep'14 - Present

- Ph.D. Computer Engineering

University of Delhi Aug'06 - Jul'11

- M.Sc. Computer Science
- B.Sc. (Hons.) Computer Science

RESEARCH EXPERIENCE

IBM Research, T.J. Watson Yorktown Heights *(Research Intern)* May'18 - Aug'18

IBM Research, T.J. Watson Yorktown Heights *(Research Intern)* May'17 - Aug'17

Massachusetts Open Cloud, Boston University *(Graduate Research Student)* May'15 - Present

HPC Lab, Northeastern University *(Graduate Research Student)* Sep'14 - Present

PUBLICATIONS

A. Mohan, S.Nadgowda, B.Pipaliya, S.Varma, S.Suneja, C.Isci, G.Cooperman, P.Desnoyers, O.Krieger, and A.Turk, *"NiBi: Non-Intrusive Bare-Metal Introspection"*, (Under Review - Paper)

A.Mosayyebzadeh, **A. Mohan**, S.Tikale, A.Raza, N.Schear, T.Hudson, C.Munson, L.Rudolph, G.Cooperman, P.Desnoyers, and O.Krieger, *"Tenant Controlled Security for Bare-Metal Clouds"*, (Under Review - Paper)

R.Garg, **A. Mohan**, M.Sullivan, and G.Cooperman, *"CRUM: Checkpoint-Restart Support for CUDA's Unified Memory"*, 2018 IEEE International Conference on Cluster Computing (Cluster'18 - Paper)

A.Mosayyebzadeh, G.Ravago, **A. Mohan**, A.Raza, S.Tikale, N.Schear, T.Hudson, J.Hennessey, N.Ansari, K.Hogan, C.Munson, L.Rudolph, G.Cooperman, P.Desnoyers, and O.Krieger, *"A Secure Cloud with Minimal Provider Trust"*, 10th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud'18 - Paper)

A. Mohan, A.Turk, R.S. Gudimetla, S.Tikale, J.Hennessey, U.Kaynar, G.Cooperman, P.Desnoyers, and O.Krieger, *"M2: Malleable Metal-as-a-Service"*, 2018 IEEE International Conference on Cloud Engineering, (IC2E'18 - Paper)

A. Mohan, R.Garg, S.Taazi, and G.Cooperman, *"Recycling Lost CPU Cycles: Managing Multiple Many-core Jobs"*, 4th Annual New England Network and Systems Day (NENS'17 - Poster)

A. Mohan, R.S.Gudimetla, A.Turk, S.Bollapragada, R.Kumar, J.Hennessey, E.Weinberg, D.Makrigiorgos, C.N.Hill, G.Cooperman, P.Desnoyers, R.Brower, and O.Krieger, *"Marrying HPC and Cloud for Long-Term Happiness"*, The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC'16 - Poster)

PROJECTS

Improved Resource Efficiency in Private Data Centers

- Multiplexing bare-metal servers between co-located clusters in private data centers.

Recycling Lost CPU Cycles in the Cloud

- Scheduling and re-balancing of co-located batch jobs in the cloud.

Rapid Bare-Metal Provisioning and Imaging

- Provisioning and image management of bare-metal servers like virtual machines.

Distributed DNN Training in the Cloud

- Analyzing system bottlenecks of distributed Deep Neural Network (DNN) training on commodity infrastructure.

TALKS

A. Mohan, *"Marrying HPC and Cloud for Long-Term Happiness"*, 2017 IBM Research Workshop on Architectures for Cognitive Computing and Datacenters

A. Mohan, and S.Tikale, *"Elastic OpenStack Deployments"*, OpenStack Summit | Boston 2017

TECHNICAL EXPOSURE

▪ **Programming:** C, Python, Shell-Scripting, OpenMP, OpenMPI, CUDA ▪ **System Profiling:** perf, sysstat, tcpdump, fio, strace, ptrace, gdb ▪ **Virtualization:** KVM, QEMU, Libvirt ▪ **Storage:** Ceph, TGT/IET iSCSI ▪ **Deep Learning:** Caffe (Imagenet+Alexnet) ▪ **Databases:** MySQL, SQLite, PostgreSQL ▪ **Web:** Web2py, JavaScript, HTML, CSS, JQuery, REST

OTHER WORK EXPERIENCE

Indian Institute of Technology, Delhi *(Research Associate)*	Dec'12 - Aug'14
Maharaja Agrasen College, University of Delhi *(Guest Lecturer)*	Jan'13 - Dec'13
Maharaja Agrasen College, University of Delhi *(Adhoc Assistant Professor)*	Sep'12 - Dec'12
One97 Communications Ltd., NOIDA *(Software Developer - Java)*	July'11 - Sep'12