

Nikhil Jain

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Professional Preparation

2009 **B.Tech., Computer Science & Engineering**, *Indian Institute of Technology, Kanpur*
2009 **M.Tech., Computer Science & Engineering**, *Indian Institute of Technology, Kanpur*
2016 **Ph.D., Computer Science**, *University of Illinois at Urbana-Champaign*

Appointments

2016–present **Fernbach Postdoctoral Fellow**, *Center for Applied Scientific Computing, LLNL*
2011–2016 **Research Assistant**, *Parallel Programming Laboratory, Ullinois*
Summer 2014 **Research Intern**, *Center for Applied Scientific Computing, LLNL*
Summer 2012 **Research Intern**, *Center for Applied Scientific Computing, LLNL*
Spring 2011 **Visiting Scholar**, *Parallel Programming Laboratory, Ullinois*
2009–2011 **Blue Scholar**, *IBM Research, New Delhi*
Summer 2007 **Research Scholar**, *Polytechnic Institute of NYU*

Awards

NERSC Award for Innovative Use of HPC, 2017. Fernbach Postdoctoral fellowship, 2016. IBM PhD fellowship, 2014. HPC Challenge Class 2, SC 2011. Andrew and Shana Laursen fellowship, 2011.

Research Interests

High performance computing networks, Performance analysis and visualization, Applications of parallel computing, Runtime systems, Parallel programming paradigms, Topology-aware mapping, Collective operations on parallel systems

Select Publications

- [1] **Nikhil Jain**, Abhinav Bhatele, Louis Howell, David Bohme, Ian Karlin, Edgar Leon, Misbah Mubarak, Noah Wolfe, Todd Gamblin, and Matthew Leininger. Predicting the Performance Impact of Different Fat-tree Configurations. *SC 2017*.
- [2] **Nikhil Jain**, Abhinav Bhatele, Xiang Ni, Todd Gamblin, and Laxmikant V. Kale. Partitioning Low-diameter Networks to Eliminate Inter-job Interference. *IPDPS 2017*.
- [3] **Nikhil Jain**, Abhinav Bhatele, Sam White, Todd Gamblin, and Laxmikant Kale. Evaluating HPC Networks via Simulation of Parallel Workloads. *SC 2016*.
- [4] **Nikhil Jain**, Eric Bohm, Eric Mikida, Subhasish Mandal, Minjung Kim, Prateek Jindal, Qi Li, Sohrab Ismail-Beigi, Glenn J. Martyna, and Laxmikant V. Kale. OpenAtom: Scalable Ab-Initio Molecular Dynamics with Diverse Capability. *ISC HPC 2016*.
- [5] **Nikhil Jain**, Abhinav Bhatele, Jae-Seung Yeom, Mark F. Adams, Francesco Miniati, Chao Mei, Laxmikant Kale. Charm++ & MPI: Combining the Best of Both Worlds. *IPDPS 2015*.
- [6] Ehsan Toton, **Nikhil Jain**, Laxmikant Kale. Power Management of Extreme-scale Networks with On/Off Links in Runtime Systems. *TOPC 2014, Journal*.
- [7] **Nikhil Jain**, Abhinav Bhatele, Xiang Ni, Nicholas J. Wright, Laxmikant Kale. Maximizing Network

Throughput on the Dragonfly Interconnect. *SC 2014*.

[8] **Nikhil Jain**, Abhinav Bhatele, Michael Robson, Todd Gamblin, Laxmikant Kale. Predicting application performance using supervised learning on communication features. *SC 2013*.

[9] Abhinav Bhatele, **Nikhil Jain**, William Gropp and Laxmikant Kale. Avoiding Hot-spots on Two-level Direct Networks. *SC 2011*.

[10] **Nikhil Jain** and Yogish Sabharwal. Optimal Bucket Algorithms for large MPI Collectives on Torus Interconnect. *ICS 2010*.

Synergistic Activities

Book Chapter	Programming Models for Parallel Computing
TPC	COMHPC '16, Cluster '17, HPC Asia '18, IPDPS '18, PMBS '17, SCSC '16 '17, Supercomputing Asia '18,
Other Reviewing	TPDS, IJHPCA, JPDC, Biophysical, PACT '17, IPDPS '14 '17, Cluster '12
Memberships	ACM, IEEE

Graduate and Postdoctoral Advisors: Todd Gamblin (LLNL), Abhinav Bhatele (LLNL), Laxmikant V. Kale (Ullinois)