Harshitha G. Menon

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Education

2016 **Ph.D., Computer Science**, *University of Illinois at Urbana-Champaign*.
Adaptive Load Balancing for HPC Applications. Advisor: Laxmikant V. Kale

2012 **M.S., Computer Science and Engineering**, *University of Illinois at Urbana-Champaign*.

2006 **B.Tech., Computer Science and Engineering**, *College of Engineering*, Trivandrum, India.

Awards & Honors

2017 Best Poster Award Finalist, Supercomputing (SC) '17
2016 Featured article in IEEE Computer magazine October issue
2016 Invited to Women in Research Lean In event for top PhD female students, Facebook
2014 ACM/IEEE-CS George Michael Memorial HPC Fellowship, SC '14
2014 Google Anita Borg Memorial Scholarship
2014 Best Paper Award, IEEE Cluster '14
2014 Feng Chen Memorial Best Paper Award, University of Illinois at Urbana Champaign
2013 Google Anita Borg Memorial Scholarship Finalist
2013 Best Student Paper Award Finalist, Supercomputing (SC) '13
2013 Best Poster Award, Student Poster Symposium, LLNL
2012 Siebel Scholarship
2012 Member of finalist team for HPC Challenge Class II Award, Supercomputing (SC) '12
2011 Teachers Ranked as Excellent, University of Illinois at Urbana Champaign, Fall 2011
2010 Google Fellowship for Employees
2007 Google Founders Award for contributions to Gmail

Research and Work Experience

2016-present **Lawrence Livermore National Laboratory**, *Postdoctoral Research Staff*.
2012-2016 **Dept of Computer Science, University of Illinois at Urbana-Champaign**, *Research Assistant*.
Summer 2015 **Charmworks**, *Advanced Software Developer Intern*.
Summer 2013 **Lawrence Livermore National Laboratory**, *Research Intern*.
2010-2011 **Dept of Computer Science, University of Illinois at Urbana-Champaign**, *Teaching Assistant*.
Summer 2011 **Google**, *Summer Intern*.
2006-2010 **Google**, *Software Engineer*.

Mentoring/Co-advising

Students Zhimin Li (Univ Utah), Logan Moody (JMU), Nathan Pinnow (WWU), Garrett Folks (JMU)

Committees

Technical Program Committees PPoPP '19, ICPP '18, Euro MPI '18

Other Reviewing TPDS, IJHPCA, Concurrency and Computation: Practice and Experience, PMBS, FGCS

Software Projects

ADAPT Algorithmic Differentiation based method for mixed precision analysis.

Software I have contributed to

Charm++ Object-based message driven parallel programming paradigm.

ChaNGa Cosmology simulation application.

MapReduce Distributed data processing.

Publications

Peer Reviewed Conference & Journal Papers

[1] **Harshitha Menon**, Michael Lam, Daniel Osei-Kuffuor, Markus Schordan, Scott Lloyd, Kathryn Mohror, and Jeffrey Hittinger. Adapt: Algorithmic differentiation applied to floating-point precision tuning. In *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC)*, 2018 (to appear).

[2] Seonmyeong Bak, **Harshitha Menon**, Sam White, Matthias Diener, and Laxmikant Kale. Multi-level load balancing with an integrated runtime approach. In *2018 18th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID)*, pages 31–40. IEEE, 2018.

[3] **Harshitha Menon** and Kathryn Mohror. Discvar: discovering critical variables using algorithmic differentiation for transient faults. In *Proceedings of the 23rd ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP)*, pages 195–206. ACM, 2018.

[4] Bilge Acun, Akhil Langer, Esteban Meneses, **Harshitha Menon**, Osman Sarood, Ehsan Totoni, and Laxmikant V. Kalé. Power, reliability, and performance: One system to rule them all. *IEEE Computer, Energy Efficient Computing Special Issue*, 49(10):30–37, Oct 2016.

[5] A Bastidas Fry, F Governato, A Pontzen, T Quinn, M Tremmel, L Anderson, H Menon, AM Brooks, and J Wadsley. All about baryons: revisiting sidm predictions at small halo masses. *Monthly Notices of the Royal Astronomical Society*, 452(2):1468–1479, 2015.

[6] **Harshitha Menon**, Lukasz Wesolowski, Gengbin Zheng, Pritish Jetley, Laxmikant Kale, Thomas Quinn, and Fabio Governato. Adaptive techniques for clustered n-body cosmological simulations. *Computational Astrophysics and Cosmology*, 2(1):1, 2015.

[7] Bilge Acun, Abhishek Gupta, Nikhil Jain, Akhil Langer, **Harshitha Menon**, Eric Mikida, Xiang Ni, Michael Robson, Yanhua Sun, Ehsan Totoni, et al. Parallel programming with migratable objects: Charm++ in practice. In *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC)*, pages 647–658. IEEE Press, 2014.

[8] Jonathan Lifflander, Esteban Meneses, **Harshitha Menon**, Phil Miller, Sriram Krishnamoorthy, and Laxmikant V Kalé. Scalable replay with partial-order dependencies for message-logging fault tolerance. In *2014 IEEE International Conference On Cluster Computing (CLUSTER)*, pages 19–28. IEEE, 2014. **Best Paper Award**.

[9] **Harshitha Menon**, Bilge Acun, Simon Garcia De Gonzalo, Osman Sarood, and Laxmikant Kalé. Thermal aware automated load balancing for hpc applications. In *Cluster Computing (CLUSTER), 2013 IEEE International Conference on*, pages 1–8. IEEE, 2013.

[10] **Harshitha Menon** and Laxmikant Kalé. A distributed dynamic load balancer for iterative applications. In *Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis (SC)*, page 15. ACM, 2013. **Best Student Paper Award Finalist**.

[11] **Harshitha Menon**, Nikhil Jain, Gengbin Zheng, and Laxmikant Kale. Automated load balancing invocation based on application characteristics. In *Cluster Computing (CLUSTER), 2012 IEEE International Conference on*, pages 373–381. IEEE, 2012.

Workshop Papers

[12] **Harshitha Menon**, Chun-Kai Chang, Kathryn Mohror, and Mattan Erez. Identifying critical variables using algorithmic differentiation for a realistic fault model. In *Silicon Errors in Logic System Effects (SELSE)*, 2018.

[13] Seonmyeong Bak, **Harshitha Menon**, Sam White, Matthias Diener, and Laxmikant Kale. Integrating openmp into the charm++ programming model. In *Proceedings of the Third International Workshop on Extreme Scale Programming Models and Middleware at SC*, page 4. ACM, 2017.

[14] Markus Schordan, Jan Hückelheim, Pei-Hung Lin, and **Harshitha Menon**. Verifying the floating-point computation equivalence of manually and automatically differentiated code. In *Proceedings of the First International Workshop on Software Correctness for HPC Applications at SC*, pages 34–41. ACM, 2017.

Ph.D. Dissertation

[15] **Harshitha Menon**. *Adaptive load balancing for HPC applications*. PhD thesis, University of Illinois at Urbana-Champaign, Urbana, Illinois, October 2016.

Posters

[16] Zhimin Li, **Harshitha Menon**, Yarden Livnat, Kathryn Mohror, and Valerio Pascucci. Spotsdc: an information visualization system to analyze silent data corruption. In *Proceedings of the 2018 International Conference on Supercomputing, Networking and Storage (SC)*, Houston, USA, 11 2018.

[17] Logan Moody, Nathan Pinnow, Michael Lam, **Harshitha Menon**, Markus Schordan, Scott Lloyd, and Tanzima Islam. Automatic generation of mixed-precision programs. In *Proceedings of the 2018 International Conference on Supercomputing, Networking and Storage (SC)*, Houston, USA, 11 2018.

[18] Vivek Kale, **Harshitha Menon**, and Karthik Senthil. Adaptive loop scheduling with charm++ to improve performance of scientific applications. In *Proceedings of the 2017 International Conference on Supercomputing, Networking and Storage (SC)*, Denver, USA, 11 2017.

[19] **Harshitha Menon**, Kavitha Chandrasekar, and Laxmikant V Kale. Poster: Automated load balancer selection based on application characteristics. In *PPoPP '17 ACM SIGPLAN Notices*, volume 52, pages 447–448. ACM, 2017.

[20] **Harshitha Menon**, Kavitha Chandrasekar, and Laxmikant V Kale. Meta-balancer: Automating load balancing decisions. In *Proceedings of the 2016 International Conference on Supercomputing, Networking and Storage (SC)*, 2016.