

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**, *Computer Scientist (from 10/18), Postdoctoral Research Staff (till 10/18)*.
- 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, ICCP '18, Euro MPI '18
- Other Reviewing TPDS, IHPCA, 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 O. 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 '18, pages 48:1–48:13, Piscataway, NJ, USA, 2018. IEEE Press.
- [2] **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.
- [3] S. Bak, H. Menon, S. White, M. Diener, and L. 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, May 2018.
- [4] Bilge Acun, Akhil Langer, Esteban Meneses, **Harshitha Menon**, Osman Sarood, Ehsan Toton, 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 Toton, 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.