

## Shashank Gugnani

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| CONTACT INFORMATION         | 2015 Neil Avenue<br>Columbus, OH - 43210   | +1 (614) 632-3094<br>gugnani.2@osu.edu |
| RESEARCH INTERESTS          | Parallel computer architecture, high performance networking, InfiniBand, network-based computing, Big Data, high performance filesystems and storage, virtualization, and cloud computing.   |  |
| EDUCATION                   | <b>The Ohio State University</b> , Columbus, OH<br>Ph.D., Computer Science, GPA (3.93/4)<br>Advisor: D.K. Panda  | 2015 - present                         |
|                             | <b>BITS-Pilani</b> , India<br>B.E. (Hons), Computer Science, GPA (8.88/10)   | 2011 - 2015                            |
| WORK EXPERIENCE             | <b>Graduate Research Associate</b><br>Network Based Computing Laboratory,<br>The Ohio State University<br>Project Title: Designing storage systems for next-generation cloud environments  | Aug 2015 - present                     |
|                             | <b>Graduate Teaching Associate</b><br>Department of Computer Science,<br>The Ohio State University<br>Grader for CSE 2331: Data Structures and Algorithms and<br>CSE 3421: Introduction to Computer Architecture   | Aug 2015 - May 2016                    |
|                             | <b>Visiting Researcher</b><br>Centre for Parallel Computing,<br>University of Westminster, London, UK<br>Project Title: Integrating Hadoop with scientific workflow systems  | Jun 2014 - Dec 2014                    |
|                             | <b>Intern</b><br>Telecom Centres of Excellence,<br>New Delhi, India<br>Project Title: Strategy for growth of smartphone manufacturing ecosystem in India   | May 2013 - Jul 2013                    |
|                             | <b>Intern</b><br>Kritikal Solutions Pvt. Ltd.,<br>Noida, India<br>Project Title: Resource monitoring android application   | May 2012 - Jul 2012                    |
| ACHIEVEMENTS AND ACTIVITIES | <ul style="list-style-type: none"><li>• Selected as participant for the ACM Student Research Competition at SC'17 and SC'18</li><li>• Awarded student travel grant for BDN'16, BDN'17, BDN'18, HiPC'17, SC'17, SC'18, and NVMW'18</li><li>• Presented talk at Data Works Summit, 2018</li><li>• Served as Reviewer for the DYNA Journal</li><li>• Technical Program Committee Member for the World Symposium on Computer Applications &amp; Research, 2015</li></ul> |  |

RESEARCH  
PROJECTS

***BD Spokes: SPOKE: MIDWEST: Collaborative: Advanced Computational Neuroscience Network (ACNN)***, National Science Foundation, Sep 16 - Aug 19

Role: Developing scalable and parallel solutions for linear fascicle evaluation of the brain connectome. Resulting designs were made publicly available on docker hub.

***BIGDATA: Scalable Middleware for Managing and Processing Big Data on Next Generation HPC Systems***, National Science Foundation, Sep 14 - Aug 17

Role: High-performance designs for HBase and Hadoop on RDMA-enabled systems. Developed designs were distributed as publicly available software releases.

***Chameleon: A Large-Scale, Reconfigurable Experimental Environment for Cloud Research***, National Science Foundation, Oct 14 - Sep 17

Role: Designing high-performance Big Data middleware stacks and appliances for SR-IOV-enabled cloud environments. Developed appliances were made publicly available through the Chameleon appliance catalog.

***CloudSME: Cloud based Simulation Platform for Manufacturing and Engineering***, European Commission FP7 Capacities, July 13 - March 16

Role: Extended scientific workflow systems to support MapReduce based applications in the cloud. As part of the project, optimal strategies for infrastructure management and integration with workflows were developed.

REFEREED  
PUBLICATIONS

1. **S. Gugnani**, X. Lu, and D.K. Panda, "Analyzing, Modeling, and Provisioning QoS for NVMe SSDs", IEEE/ACM International Conference on Utility and Cloud Computing (UCC'18), Dec 2018
2. **S. Gugnani**, X. Lu, H. Qi, L. Zha, and D.K. Panda, "Characterizing and Accelerating Indexing Techniques on Distributed Ordered Tables", IEEE International Conference on Big Data (BigData'17), Dec 2017
3. **S. Gugnani**, X. Lu, F. Pestilli, C. Caiafa, and D.K. Panda, "MPI-LiFE: Designing High-Performance Linear Fascicle Evaluation of Brain Connectome with MPI", 24<sup>th</sup> IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC'17), Dec 2017
4. **S. Gugnani**, X. Lu, and D.K. Panda, "Swift-X: Accelerating OpenStack Swift with RDMA for Building an Efficient HPC Cloud", 17<sup>th</sup> IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid'17), May 2017
5. X. Lu, D. Shankar, **S. Gugnani**, H. Subramoni, and D.K. Panda, "Impact of HPC Cloud Networking Technologies on Accelerating Hadoop RPC and HBase", 8<sup>th</sup> IEEE International Conference on Cloud Computing Technology and Science (CloudCom'16), Dec 2016
6. **S. Gugnani**, X. Lu, and D.K. Panda, "Designing Virtualization-aware and Automatic Topology Detection Schemes for Accelerating Hadoop on SR-IOV-enabled Clouds", 8<sup>th</sup> IEEE International Conference on Cloud Computing Technology and Science (CloudCom'16), Dec 2016
7. X. Lu, D. Shankar, **S. Gugnani**, and D.K. Panda, "High-Performance Design of Apache Spark with RDMA and Its Benefits on Various Workloads", IEEE International Conference on Big Data (BigData'16), Dec 2016

8. **S. Gugnani**, X. Lu, and D.K. Panda, “Performance Characterization of Hadoop Workloads on SR-IOV-enabled Virtualized InfiniBand Clusters”, *3<sup>rd</sup> IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT’16)*, Dec 2016
9. **S. Gugnani**, C. Blanco, T. Kiss, and G. Terstyanszky, “Extending Science Gateway Frameworks to Support Big Data Applications in the Cloud”, *Journal of Grid Computing*, Jun 2016
10. R.K. Roul, **S. Gugnani**, and I. Bansal. “Clustering Based Feature Selection using Extreme Learning Machines for Text Classification”, *12<sup>th</sup> IEEE India International Conference (INDICON’15)*, Dec 2015
11. **S. Gugnani** and T. Kiss. “Extending Scientific Workflow Systems to Support MapReduce Based Applications in the Cloud”, *7<sup>th</sup> International Workshop on Science Gateways for Life Sciences (IWSG’15)*, Jun 2015
12. **S. Gugnani**, T. Bihany, and R.K. Roul. “Demonstrating the Suitability and Importance of Extreme Learning Machines in the Domain of Query Classification”, *9<sup>th</sup> IEEE International Conference on Industrial and Information Systems (ICIIS’14)*, Dec 2014
13. **S. Gugnani**, D. Khanolkar, T. Bihany, and N. Khadilkar. “Rule Based Classification on a Multi Node Scalable Hadoop Cluster”, *7<sup>th</sup> International Conference on Internet and Distributed Computing Systems (IDCS’14)*, Sep 2014
14. **S. Gugnani** and R.K. Roul. “Triple Indexing: An Efficient Technique for Fast Phrase Query Evaluation”, *International Journal of Computer Applications*, Mar 2014
15. **S. Gugnani**, T. Bihany, and R.K. Roul. “A Complete Survey on Web Document Ranking”, *International Conference on Advances in Computer Engineering and Application*, Mar 2014

SOFTWARE SKILLS • C/C++, Java, Android, Hadoop, UNIX, L<sup>A</sup>T<sub>E</sub>X, git, RDMA, NVMe, KVM, QEMU, OpenStack, and others

LANGUAGES • Hindi: Mother Tongue  
• English: Fluent

OTHER ACTIVITIES • Member of IEEE and ACM  
• Member of Department of Photography, BITS-Pilani  
• Member of Mobile Applications Club, BITS-Pilani