

Abhishek Verma

Education

- 2008–Present **Ph.D**, *University of Illinois at Urbana-Champaign*.
2008–2010 **M.S**, *University of Illinois at Urbana-Champaign*, 3.93/4.
2004–2008 **B. Tech**, *National Institute of Technology Tiruchirappalli*, 9.52/10.

Master thesis

- Title *Scaling simple, compact and extended compact genetic algorithms using MapReduce*
Advisor Prof. Roy H. Campbell

Conference Publications

- NOMS 2012** **Abhishek Verma**, Ludmila Cherkasova, Vijay S. Kumar and Roy H. Campbell, Work-in-progress report, *“Deadline-based Workload Management for MapReduce Environments: Pieces of the Performance Puzzle”*.
- SOSP 2011** **Abhishek Verma**, Ludmila Cherkasova, Vijay S. Kumar and Roy H. Campbell, Work-in-progress report, *“Three Pieces of the MapReduce Workload Management Puzzle”*.
- Middleware 2011** **Abhishek Verma**, Ludmila Cherkasova and Roy H. Campbell, *“Resource Provisioning Framework for MapReduce Jobs with Performance Goals”*.
- Cluster 2011** **Abhishek Verma**, Ludmila Cherkasova and Roy H. Campbell, *“Play it again, SimMR!”*
- LADIS 2011** **Abhishek Verma**, Ludmila Cherkasova and Roy H. Campbell, *“Performance-driven Resource Provisioning of MapReduce Jobs in the Cloud”*.
- ICAC 2011** **Abhishek Verma**, Ludmila Cherkasova and Roy H. Campbell, *“ARIA: Automatic Resource Inference and Allocation for MapReduce Environments”*.
- Cluster 2010** **Abhishek Verma**, Nicolas Zea, Brian Cho, Indranil Gupta and Roy H. Campbell, *“Breaking the MapReduce Stage Barrier”*.
- CEC 2010** **Abhishek Verma**, Xavier Llorà, Shivaram Venkataram, David E. Goldberg and Roy H. Campbell, *“Scaling eCGA Model Building via Data-Intensive Computing”*.
- ISDA 2009** **Abhishek Verma**, Xavier Llorà, David E. Goldberg and Roy H. Campbell, *“Scaling Genetic Algorithms using MapReduce”*.
- Cluster 2009** Reza Farivar, **Abhishek Verma**, Ellick Chan and Roy H. Campbell. *“MITHRA: Multiple data Independent Tasks on a Heterogeneous Resource Architecture”*.

Book Chapters

- Springer Science **Abhishek Verma**, Shivaram Venkataraman, Matthew Caesar, and Roy H. Campbell, “*Scalable Storage for Data-intensive Computing*”. Handbook of Data-intensive Computing, Springer Science, 2011.
- Springer Series of Computational Intelligence Xavier Llorà, **Abhishek Verma**, Roy H. Campbell, and David E. Goldberg, “*When Huge is Routine: Scaling Genetic Algorithms and Estimation of Distribution Algorithms via Data-Intensive Computing*”. Parallel and Distributed Computational Intelligence, SCI 269, pp. 11-41, Springer Berlin/Heidelberg, 2010.

Journal Publication

- Cluster Computing **Abhishek Verma**, Brian Cho, Nicolas Zea, Indranil Gupta and Roy Campbell, “*Breaking the MapReduce Stage Barrier*”. Springer Journal of Cluster Computing, 2011.

Patents Filed

- June 2011 Ludmila Cherkasova, **Abhishek Verma**, “*Estimating performance parameter of a job having map and reduce tasks after a failure*”
- May 2011 Ludmila Cherkasova, **Abhishek Verma**, “*Varying a characteristic of job profile relating to map and reduce tasks according to data size*”
- April 2011 **Abhishek Verma**, Ludmila Cherkasova, “*Scheduling map and reduce tasks for jobs for execution according to performance goals*”
- Feb 2011 Ludmila Cherkasova, **Abhishek Verma**, “*Determining an allocation of resources for a MapReduce job*”
- Feb 2011 **Abhishek Verma**, Ludmila Cherkasova, “*Estimating a performance characteristic of a job using a performance model*”

Work Experience

- 2008–Present **Research Assistant**, *University of Illinois at Urbana-Champaign*.
Research Assistant with Prof. Roy H. Campbell.
- 2010–Present **Research Intern**, *Hewlett-Packard Labs*, Palo Alto.
Interned in the Storage and Information Managements Platforms Lab and researched on MapReduce performance modeling. By profiling MapReduce jobs, we built a compact performance model representing their execution. It is used to optimize the overall infrastructure utility and achieve specified service level objectives.
- Summer 2009 **Software Intern**, *Yahoo!*, Champaign.
Contributed to the design and development of Direct Object Repository Architecture (DORA), which is a high performance, horizontally scalable and reliable object based back-end storage. Worked on distributing the meta-data for fault tolerance and higher availability, wrote a FUSE (Filesystem in User Space) implementation and a Distributed Filesystem for Hadoop, the open source MapReduce implementation.
- Summer 2007 **Software Intern**, *Google*, Bangalore.
Worked on Orkut, an online social networking website. It involved understanding technologies like Map Reduce and the distributed file systems, collecting data for research on Orkut and developing new features.

Posters

- SOSP 2011 Three Pieces of the MapReduce Workload Management Puzzle
Hadoop Summit 2011 ARIA: Automatic Resource Inference and Allocation for MapReduce Environments

Research Interests

Systems Distributed Systems, Cloud Computing, Operating Systems, Networks

Relevant Courses

Systems Distributed Systems, Distributed Algorithms, Operating Systems, Internetworking
Other Algorithms, Computer Architecture, Genetic Algorithms, Statistics & Probability, Digital system design, Finite Automata, Data Mining, Fuzzy Logic

Honors and Awards

- 2009 Most valuable intern award at Yahoo!
2008 First prize (\$10,000) for building a web app SVID for searching and sharing videos for Topcoder's Truveo Developer challenge
2008 Institute Gold medal for the highest GPA in Computer Science, NIT Tiruchirappalli
2007 Silver medal from Alumni association for outstanding student in Computer Science, NIT Tiruchirappalli
2007 Summer Undergraduate Research Grant for Excellence (SURGE) Award in Indian Institute of Technology Kanpur
2004 Academic excellence award for being first in the university in freshman year among 600 students with a GPA of 9.85/10

Computer skills

Languages Java, C++, C, Shell Script, Python, JavaScript, Verilog, VHDL, PHP, SQL, \LaTeX
OS Linux (Ubuntu, Fedora, Redhat, Suse), Solaris, Windows
Software MS Office, Adobe Photoshop, AutoCAD, Matlab, Quartus

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