

**CONTACT INFORMATION**

Reno, NV, USA  
Mobile: +1-571-294-6583

E-mail: [rajat.meh@gmail.com](mailto:rajat.meh@gmail.com)  
<https://sites.google.com/site/rajatmeh/>

**KEY RESEARCH AREAS**

Distributed Computing Systems Performance and Security Management, Energy Aware High Performance Computing Systems, Big Data Systems and Analytics, Cloud Computing Systems.

**EDUCATION**

**Mississippi State University**, Mississippi State, MS USA.

Doctor of Philosophy (PhD), Electrical and Computer Engineering, Dec 2013. GPA: 4.0 (4.0 scale)

**Dissertation Topic:** Model-Based Autonomic Performance Management of Distributed Enterprise Systems and Applications.

**Adviser:** Prof. Sherif Abdelwahed

**Motilal Nehru National Institute of Technology**, Allahabad, U.P., India.

Bachelor of Technology (B.Tech.) Computer Science and Engineering, July 2005.

**PROFESSIONAL EXPERIENCE**

1. **Applied Innovation Center (AIC)**, Desert Research Institute (DRI), Reno, NV.

**Postdoctoral Fellow, Cyber Physical Systems**

Jul 2014 – Present

- Developing intellectual properties in the areas of cyber physical systems, high performance computing, and data science.
- Working with AIC director, business development and computational lead, and various divisional directors within DRI to establish priorities.
- Identifying innovative research opportunities, developing proposals, managing ongoing projects, and technical mentoring within AIC.
- Designing the architectures for various real-time data analytics and visualization systems for measurements collected from various weather monitoring stations, department of transportation stations, and numerical weather prediction models.
- Integration of apache Hadoop software packages into existing numerical weather prediction system for analyzing large amount of spatial data and generate various data products.
- Developing a generic early warning system from web-based data mining.

2. **Department of Computer Science**, University of Virginia, Charlottesville, VA.

**Postdoctoral Research Associate**

Jan 2014 – Jul 2014

- Developing an analytical modeling tool that explores the possible combinations of various resilient techniques with respect to improvement in soft error rate of the system for a DARPA funded project.

3. **NSF Center for Cloud and Autonomic Computing**, Mississippi State University, Mississippi State, MS.

**Graduate Research Assistant**

Aug 2008 – Dec 2013

- Performance Modeling of Distributed Enterprise Multi-Tier Enterprise Systems.
- A Model-Based Framework for Autonomic Performance Management of Cloud Computing Systems.
- Power-Aware Autonomic Approach for High Performance Computing Systems.
- Automated Model-based Security Management of Web Services.

4. **Institute for Software Integrated Systems**, Vanderbilt University, Nashville, TN.

**Visiting Research Scholar**

May 2011 – Aug 2011

- Developing a self-configurable and fault tolerant distributed monitoring system for a DOE funded project in collaboration with Fermi Lab @ Batavia, IL.

5. **Alcatel-Lucent Wireless R&D Division**, Noida, India

**Senior Software Engineer**

May 2005 – Jul 2008

- Subject Matter Expert (SME) for my work area: Communication Assistance for Law Enforcement Act

(CALEA).

- Led a team of three engineers that was involved in debugging traffic related issues of live customer networks.
- Primary contact point of Call Processing group for customers that had live installation of Alcatel NGN product A5020.
- Worked as a Module Owner for “Subscriber Profile Manager” across the all global development sites.
- Worked on an integration site in France for 3 months in real network environment for Orange France and Orange UK to support the project till acceptance.

## MAJOR SYSTEM DEVELOPMENTS

- **RFDMoN:** A Real-Time and Fault-Tolerant Distributed Monitoring System for monitoring large scientific clusters at Fermi National Laboratory, Batavia, IL.
- **ANCILE:** An analytical modeling tool that explored the possible combinations of various techniques to improve the fault-tolerance as well as energy consumption of the embedded systems for a DARPA sponsored project.
- An automated model-based security management framework for US Army Corps of Engineers, Engineer Research & Development Center (ERDC), Vicksburg, MS.
- Model-Integrated computing toolsets for designing and developing energy efficient, reliable, and secured distributed computing systems.
- Real-time data analytics and visualization systems for weather monitoring stations in Nevada.
- Big data analytics platform for numerical weather prediction system for large scale spatial data analytics.

## HARDWARE AND SOFTWARE SKILLS

**Operating Systems:** Windows, Red Hat Linux, Sun Solaris 8/10, Unix.

**Programming Methodologies/Framework:** OOP, SOA, REST, MVC, and UML.

**Languages:** C, C++, Java, Python, UNIX Shell scripts, Java Script, and Ruby.

**Database Technologies:** MySQL, SQLite, Times Ten, and MS SQL.

**Web Service Frameworks:** IBM Websphere, Django, and Ruby on Rails.

**Big Data Platforms:** Hortonworks Data Platform (HDP) and Apache Hadoop Software (Spark, Kafka, Flume, Solr, Pig, Hive, etc).

**Big Data Technologies:** MapReduce, NoSQL (MongoDB), in-memory analytics, and Predictive Modeling.

**Middleware Technologies:** Data Distribution Services (DDS) OpenSplice, CORBA, SUN RPC, and MPI.

**Tools and Utilities:** Scipy Library, Matlab / Simulink and Visual Studio.

**Configuration Management:** CVS, Clear Case, SVN, and GIT.

**Virtualization Technologies:** Xen, VMWare vSphere, and VMWare ESX Server.

## PUBLICATIONS

List of peer reviewed publications are available at location:

<https://sites.google.com/site/rajatmeh/publications>

## REFERRED JOURNAL PUBLICATIONS

- **Mehrotra Rajat** and Abdelwahed Sherif, “A Model Integrated Computing Approach for Designing and Analyzing Autonomic Computing Systems,” Journal of Network and Computer Applications, Elsevier Publications (under review).
- **Mehrotra Rajat**, Banicescu Ioana, Srivastava Srishti, and Abdelwahed Sherif, “Towards an Autonomic Performance Management Approach for a Cloud Broker Environment Using a Decomposition-Coordination Based Methodology,” Special Issue on Future Generation Computer Systems, The International Journal of eScience, vol. 54, Elsevier Publications, Jan 2016.
- **Mehrotra Rajat**, and Abdelwahed Sherif, “Towards Autonomic Performance Management of Large Scale Data Centers using Interaction Balance Principles,” Cluster Computing: The Journal of Networks, Software Tools and Applications, Springer Publishers, pp.1-21, 2014.
- **Dubey Abhishek**, Mehrotra Rajat, Abdelwahed Sherif, and Tantawi Asser. “Performance Modeling of Distributed Multi-Tier Enterprise Systems,” ACM SIGMETRICS Performance Evaluation Review, vol. 37, no. 2, pp.9-11, September, 2009.

## BOOK CHAPTERS

- **Mehrotra Rajat**, Banicescu Ioana, Srivastava Srishti, and Abdelwahed Sherif. "A Power-Aware Autonomic Approach for Managing Scientific Applications in a Data Center Environment" in Handbook on Data Centers. Springer Publications, 2015.
- **Mehrotra Rajat**, Dubey Abhishek, Abdelwahed Sherif, and Tantawi Asser. "A Power-Aware Modeling and Autonomic Management Framework for Distributed Computing Systems" in Handbook of Energy-Aware and Green Computing, Two Volume Set. Pp. 621 -647. Chapman and Hall/CRC Press Taylor and Francis Group LLC. Dec 2011.

## CONFERENCE PUBLICATIONS

- **Mehrotra Rajat**, and Abdelwahed Sherif, "A Component-Based Framework for Autonomic Performance Management in a Distributed Computing Environment," The 11th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA' 2014) pp.493-500, November 10-13, 2014, Doha, Qatar.
- **Mehrotra Rajat**, Srivastava Srishti, Banicescu Ioana, and Abdelwahed Sherif. "An Interaction Balance Based Approach for Autonomic Performance Management in a Cloud Computing Environment," Workshop on Adaptive Resource Management and Scheduling for Cloud Computing, (ARMS-CC), July 15-19, 2014, Paris, France, published in Lecture Notes in Computer Science, vol. 8907, pp 52-70.
- **Mehrotra Rajat**, Abdelwahed Sherif, and Erradi Abdelkarim, "A Distributed Control Approach for Autonomic Performance Management in Cloud Computing Environment," In Proceedings of the 2013 IEEE/ACM 6th International Conference on Utility and Cloud Computing (UCC '13), pp. 269-272, Dresden, Germany, 2013.
- **Mehrotra Rajat**, Dubey Abhishek, Abdelwahed Sherif, and Rowland Krisa, "RFDMon: A Real-Time and Fault-Tolerant Distributed System Monitoring Approach." The Eighth International Conference on Autonomic and Autonomous Systems (ICAS-2012), St. Maarten, Netherlands Antilles, 2012.
- Chen Qian, Mehrotra Rajat, Dubey Abhishek, Abdelwahed Sherif, and Rowland Krisa, "On State of The Art in Virtual Machine Security." Proceedings of IEEE South East Conference (SouthEastCon-2012), pp. 1-6, Orlando, FL, 2012.
- **Mehrotra Rajat**, Banicescu Ioana, and Srivastava Srishti, "A Utility Based Power-Aware Autonomic Approach for Running Scientific Applications." 26th IEEE International Parallel and Distributed Processing Symposium Workshops & PhD Forum, pp. 1457-1466, Shanghai, China, 2012.
- Monceaux Weston, Deland E. Evans, Keith N. Rappold, Cary D. Butler, Abdelwahed Sherif, **Mehrotra Rajat**, and Dubey Abhishek, "Implementing Autonomic Computing Methods to Improve Attack Resilience in Web Services." DoD High Performance Computing Modernization Program Users Group Conference, pp.441-445, Portland, OR, June 2011.
- **Mehrotra Rajat**, Dubey Abhishek, Abdelwahed Sherif, and Monceaux Weston, "Large Scale Monitoring and Online Analysis in a Distributed Virtualized Environment." IEEE International Conference and Workshop on Engineering of Autonomic and Autonomous Systems, 0:1-9, Las Vegas, NV, 2011.
- **Mehrotra Rajat**, Dubey Abhishek, Abdelwahed Sherif, and Tantawi Asser, "Integrated Monitoring and Control for Performance Management of Distributed Enterprise Systems," 18th Annual IEEE/ACM International Symposium on Modelling, Analysis and Simulation of Computer and Telecommunication Systems, pp.424-426, Miami, FL, 2010.

## TECHNICAL REPORTS

- **Mehrotra Rajat**, and Abdelwahed Sherif, "Application of Interaction Balance Principle for Optimal Control in the Distributed Web Service Deployment." Technical Report, Mississippi State University, May 2013.
- Jia Rui, **Mehrotra Rajat**, Abdelwahed Sherif, and Erradi Abdelkarim, "An Implementation of a Real-Time Monitoring Framework to Support Fault Management in Distributed Systems." Technical Report, Mississippi State University, May 2012.
- **Mehrotra Rajat**, Dubey Abhishek, and Abdelwahed Sherif, "RFDMon: A Real-Time and Fault-Tolerant Distributed System Monitoring Approach". Technical report for Institute for Software Integrated Systems (ISIS), Vanderbilt University, 2011.
- **Mehrotra Rajat**, Dubey Abhishek., Abdelwahed Sherif, and Tantawi Asser. "Model Identification for Performance Management of Distributed Enterprise Systems." Technical report for Institute for Software Integrated Systems (ISIS), Vanderbilt University, 2010.

## OTHER NEWS ARTICLES

- **Mehrotra Rajat**, “Requirements of a Generic Framework for Service Deployment in a Cloud Infrastructure.” The Newsletter of NSF Center for Cloud and Autonomic Computing, Vol. 4, Spring-2012.
- **Mehrotra Rajat**, and Banicescu, Ioana, “A Model-Based Framework for Autonomic Performance Management of Cloud Computing Systems.” The Newsletter of NSF Center for Cloud and Autonomic Computing, Vol. 4, Spring-2012.
- **Mehrotra Rajat**, and Abdelwahed Sherif, “Performance Modeling of Distributed Multi-Tier Enterprise Systems.” The Newsletter of NSF Center for Cloud and Autonomic Computing, Vol. 3, Summer-2011.

## POSTERS

- **Mehrotra Rajat**, and Abdelwahed Sherif, “Model-Based Framework for Autonomic Resource Management of Web Service Platforms”, NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ Rutgers University, Piscataway, NJ, Spring-2013.
- Srivastava Srishti, **Mehrotra Rajat**, Banicescu Ioana, and Abdelwahed Sherif, “A Model-based Framework for Autonomic Performance Management of Cloud Computing Systems.” 15th SIAM Conference on Parallel Processing for Scientific Computing, Savannah, GA, Feb-2012.
- **Mehrotra Rajat**, Qian Chen, Dubey Abhishek, Abdelwahed Sherif, and Rowland Krisa 2011, “Automated Model-based Security Management of Web Services.” 20th USENIX Security Symposium, San Francisco, CA, 2011.
- **Mehrotra Rajat**, Dubey Abhishek, Abdelwahed Sherif, and Tantawi Asser, “Integrated Monitoring and Control for Performance Management of Distributed Enterprise Systems,” 18th IEEE/ACM International Symposium on Modelling, Analysis and Simulation of Computer and Telecommunication Systems, pp.424-426, 2010.
- **Mehrotra Rajat**, Dubey Abhishek, Abdelwahed Sherif, and Tantawi Asser, “Performance Modelling of Distributed Multi-Tier Enterprise Systems.” NSF-CAC (Center for Autonomic Computing) Semi-annual Meeting / Workshop @ Biosphere-2, Arizona, Fall-2011.
- Jia Rui, **Mehrotra Rajat**, Dubey Abhishek, and Abdelwahed Sherif, “Model-based Framework for Autonomic Resource Management of Web Services Platforms.” NSF-CAC (Center for Autonomic Computing) Semi-annual Meeting / Workshop @ Xerox, Dallas, Spring-2011.
- **Mehrotra Rajat**, Dubey Abhishek, and Abdelwahed Sherif, “Model-based Adaptive Performance Control of Cloud Computing Systems.” NSF-CAC (Center for Autonomic Computing) Semi-annual Meeting / Workshop @ Xerox, Dallas, Spring-2011.
- **Mehrotra Rajat**, and Abdelwahed Sherif, “Hierarchical Limited Look-ahead Controller for a Distributed Multi-Tier Enterprise Systems.” NSF-CAC (Center for Autonomic Computing) Semi-annual Meeting / Workshop @ Mississippi State University, Fall-2009.

## INVITED TALKS AND PRESENTATIONS

- “Cyber-Infrastructure in Nevada EPSCoR,” NSF Workshop, Las Vegas, NV, Feb 2016.
- “A Component-Based Framework for Autonomic Performance Management in a Distributed Computing Environment,” The 11th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA' 2014) November, 2014, Doha, Qatar.
- “An Interaction Balance Based Approach for Autonomic Performance Management in a Cloud Computing Environment,” Workshop on Adaptive Resource Management and Scheduling for Cloud Computing, (ARMS-CC), (Remote Presentation), July 2014, Paris, France.
- “Model-Based Autonomic Performance Management of Distributed Enterprise Systems and Applications,” invited presentation, Desert Research Institute, Reno, NV, May 2014.
- “A Distributed Control Approach for Autonomic Performance Management in Cloud Computing Environment,” In Proceedings of the 2013 IEEE/ACM 6th International Conference on Utility and Cloud Computing (UCC '13), Dec 2013, Dresden, Germany.
- “Model-Based Autonomic Performance Management of Distributed Enterprise Systems and Applications,” invited presentation, VMWare, Palo Alto, CA, Oct 2013.
- “A Component based Framework for Autonomic Performance Management of Applications Hosted in Distributed Real Time Environment,” invited presentation, Mathworks Inc., Boston, MA, Feb 2013.
- “Model-Based Framework for Autonomic Resource Management of Web Service Platforms”, NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ Rutgers University, Piscataway, NJ, Spring-2013.
- “A Utility Based Power-Aware Autonomic Approach for Running Scientific Applications.” 26th IEEE International Parallel and Distributed Processing Symposium Workshops & PhD Forum, Shanghai, China, 2012.
- “RFDMon: A Real-Time and Fault-Tolerant Distributed System Monitoring Approach,” The Eighth International

Conference on Autonomic and Autonomous Systems (ICAS-2012), Saint Martin, Mar 2012.

- “Model-Based Framework for Autonomic Resource Management of Web Service Platforms,” NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ Mississippi State University, Mississippi State, MS, Fall 2012.
- “Performance Modeling of Distributed Multi-Tier Enterprise Systems,” NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ Biosphere-2, Arizona, Fall-2011.
- “A Model-based Framework for Autonomic Performance Management of Cloud Computing Systems,” NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ Biosphere-2, Arizona, Fall-2011.
- “Model-Based Framework for Autonomic Resource Management of Web Service Platforms,” NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ Biosphere-2, Arizona, Fall-2011.
- “Large Scale Monitoring and Online Analysis in a Distributed Virtualized Environment,” IEEE International Conference and Workshop on Engineering of Autonomic and Autonomous Systems (EASe), Las Vegas, NV, April, 2011.
- “Performance Modeling of Distributed Multi-Tier Enterprise Systems,” NSF-CAC (Center for Cloud and Autonomic Computing) Planning Meeting @ Xerox Inc., Dallas, TX Spring-2011.
- “Automated Model-Based Security Management of Web Services,” NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ Xerox Inc., Dallas, TX Spring-2011.
- “Model-Based Framework for Autonomic Resource Management of Web Service Platforms,” NSF-CAC (Center for Cloud and Autonomic Computing) Semi-annual Meeting / Workshop @ University of Florida, Gainesville, FL, Fall 2010.
- “Performance Modeling of Distributed Multi-Tier Enterprise Systems,” NSF-CAC (Center for Cloud and Autonomic Computing) Planning Meeting @ Mississippi State University, Mississippi State, MS, Fall 2009.
- “Performance Modeling of Distributed Multi-Tier Enterprise Systems,” The Workshop on Mathematical performance Modeling and Analysis (MAMA -2009), Seattle, WA, June 2009.

## COLLABORATIONS

Collaborated with various academic and industrial research organizations to perform research and develop novel algorithms, distributed architectures, energy-aware approaches, and software toolsets for advancing their research. These organizations include:

- IBM Thomas J. Watson Research Center, Yorktown Heights, NY.
- Fermi National Laboratory, Batavia, IL.
- US Army Corps of Engineers, Engineer Research & Development Center (ERDC), Vicksburg, MS.
- Institute for Software Integrated Systems, Vanderbilt University, Nashville, TN.
- Dept. of Computer Science, University of Virginia, Charlottesville, VA.
- NSF Center for Cloud and Autonomic Computing, Mississippi State University.
- High Performance Computing Collaboratory (HPC2), Mississippi State University.
- Desert Research Institute, Reno, NV.
- University of Nevada, Reno, NV.
- University of Nevada, Las Vegas, NV.

## PROFESSIONAL AFFILIATIONS AND HONOURS

- IEEE, Senior Member ([http://www.ieee.org/membership\\_services/membership/senior/index.html](http://www.ieee.org/membership_services/membership/senior/index.html)): A special honor for select few of IEEE members for their significant recognition in technical and professional achievement and excellence.
- ACM, Professional Member.
- Member of Cloud and Network Softwarization (CloudNetS) Research group, Oxford Brookes University, Oxford, UK (<http://tech.brookes.ac.uk/CloudNets/members.php>): Group of internationally recognized and accomplished researchers who have interest in solving critical problems of cloud computing and software defined networking.
- Student travel grant to attend and present my ongoing research project in 20th USENIX Security Symposium, 2011 in San Francisco, CA.
- Phi kappa Phi Honor Society (<https://www.phikappaphi.org/>), Member 2009: Only top 10% of the graduate students get invitation to join this.
- IEEE Eta Kappa Nu Honor Society ([http://www.ieee.org/education\\_careers/education/ieee\\_hkn/index.html](http://www.ieee.org/education_careers/education/ieee_hkn/index.html)), Member 2010: It recognizes academic achievements, indicates leadership potential, both while in school and in

the course of a professional career.

- Featured Researcher in The Newsletter of NSF Center for Autonomic Computing, Vol. 3, Summer-2011.
- President of MSU Cricket Club, Mississippi State University for year 2010-11.
- Vice-President of MSU Cricket Club, Mississippi State University for year 2009-10.
- Kudos Award in Alcatel-Lucent for exceptional performance during year 2006-2007.

## **JOURNALS AND CONFERENCE REVIEW SERVICES**

- Reviewer for Journal of Cluster Computing, Springer Publications.
- Reviewer for IEEE Transactions on Cloud Computing.
- Reviewer for Journal of Earthquake Science, Springer Publications.
- Reviewer for International Journal of Advanced Computer Science and Applications (IJACSA).
- Reviewer for International Journal of Communication Networks and Distributed Systems (IJCNDS).
- Reviewer for International Journal of Computing and Digital Systems (IJCDS).
- Technical Program Committee Member of 2nd IEEE International Conference on Communication Systems, Computing and IT Applications (CSCITA) 2017.
- Technical Program Committee Member of Future Technologies Conference 2016.
- Technical Program Committee Member of IEEE International Conference on Intelligent Systems (Intellisys), London, UK, 2016.
- Technical Program Committee Member of International Conference on Information and Communication Technologies for Disaster Management (ICT-DM), 2016.
- Technical Program Committee Member of International Workshop on Science of Smart City Operations and Platforms Engineering (SCOPE) 2016.
- Technical Program Committee Member of International Conference on Advances in Computing, Communications and Informatics (ICACCI) 2016.
- Technical Program Committee Member of International Conference on Internet Monitoring and Protection (ICIMP) 2016.
- Technical Program Committee Member for International Conference on Autonomic and Autonomous Systems (ICAS), 2016.
- Technical Program Committee Member of IEEE International Workshop on Management Issues in SDN, SDI and NFV (MISSION 2015), London, UK, 2015.
- Technical Program Committee Member of International Conference on Information and Communication Technologies for Disaster Management (ICT-DM), 2015,
- Technical Program Committee Member for International Conference on Autonomic and Autonomous Systems (ICAS), 2015.
- Technical Program Committee Member of IEEE International Workshop on Manageability and Security of Network Function Virtualization and Software Defined Network (MASONs), 2015.
- Technical Program Committee Member of International Conference on Computing in Mechanical Engineering (ICCME), Aug 2015.
- Technical Program Committee Member for International Conference on Autonomic and Autonomous Systems (ICAS), 2014.
- Technical Program Committee Member of ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2014).
- Technical Program Committee Member for International Conference on Autonomic and Autonomous Systems (ICAS), 2013.
- Session Chair for Theory and Practice of Autonomous Systems at International Conference on Autonomic and Autonomous Systems (ICAS), 2012.
- Reviewer for Jordanian International Electrical and Electronics Engineering Conference, 2013.
- Reviewer for Cluster Computing and the Grid (CCGRID) 2011.
- Reviewer for Jordanian International Electrical and Electronics Engineering Conference, 2011.