Nilabja Roy

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Summary

Over 12 years of experience in distributed system software development, design and analysis.

Research Interests

- QoS guarantees in component based multi-tiered distributed applications.
- Resource aware deployment of large scale distributed applications in Cloud Computing and Virtualized Environments.
- Modeling and Simulations of systems.
- Probabilistic analysis of systems, Queuing Theory, Petri Nets, Bin Packing.
- Profiling and Feedback Control.

Education

- Ph.D. in Computer Science, Vanderbilt University, expected graduation: October 2010
- M.S. in Computer Science 2007, Vanderbilt University
- Bachelors in Electrical Engineering 1997, Jadavpur University, Calcutta, India.

Citizenship United States

Work Experience

1. **07/05 – present: Phd - QoS Assurance in Distributed Component-based Systems present**
   Advisor: Dr. Douglas C. Schmidt & Dr. Aniruddha Gokhale
   Thesis focuses on maximizing application utility (revenue minus cost) by intelligently deploying application components onto multiple nodes while assuring QoS properties. The solution works on a hybrid approach blending profiling, analytical modeling and bin packing.

2. **05/06 – 08/06: Internship at Lockheed Martin – ATL, Cherry Hill – Summer 2006**
   .NET Profiler – A profiler for .NET programs detecting thread blockages and bottleneck in design.

3. **10/98 – 06/05: Ushacomm India Ltd.**
   Role – Software Designer
   Design/develop distributed application using C++/Java/CORBA which extracts data from multiple hardware devices. Installed in various countries such as US, UK, Luxemburg, Malaysia, Argentina etc. Developed a load-balancing service to manage increased load conditions.

Technical Expertise

- C/C++, Java, ACE, TAO, CIAO, Orbix, CORBA, Tomcat, Rational Rose, Windows and UNIX system programming, Design Patterns, GME (Generic Modeling Environment), Matlab, CPN Tools, WinMVA.

Publications

Refereed Journal Publications

1. Nishanth Shankaran, Nilabja Roy, Douglas C. Schmidt, Xenofon D. Koutsoukos, Yingming Chen, Chenyang Lu, "Design and Performance Evaluation of an Adaptive Resource Management Framework for Distributed Real-Time and Embedded Systems", EURASIP Journal on Embedded Systems (EURASIP JES): Special issue on Operating System Support for Embedded Real-Time Applications, Edited by Michael Gonzalez, 2008.

Refereed Conference Publications

1. Nilabja Roy, Aniruddha Gokhale and Larry Dowdy, "A Novel Capacity Planning Process for Performance Assurance of Multi-Tiered Web Applications", Poster paper in proceeding of the 18th Annual Meeting of the IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), August 17-19, Miami, FL.
2. Nilabja Roy, Yuan Xue, Aniruddha Gokhale, Larry Dowdy and Douglas C. Schmidt, "A Component Assignment Framework for Improved Capacity and Assured Performance in Web Portals", Proceedings of the 11th International Symposium on Distributed Objects, Middleware, and Applications (DOA'09) Vilamoura, Algarve-Portugal, Nov 01 - 03, 2009.
3. Nilabja Roy, Nathan Hamm, Manish Madhukar, Larry Dowdy, and Douglas C. Schmidt, "The Impact of Variability on Soft Real-Time System Scheduling", Proceedings of the 15th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA 2009), Beijing, China, August 24-26, 2009.
4. Nilabja Roy, Akshay Dabholkar, Nathan Hamm, Larry Dowdy and Douglas Schmidt, "Modeling Software Contention using Colored Petri Nets", Proceedings of the 16th Annual Meeting of the IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), September 8-10, Baltimore, MD.
5. Nilabja Roy, John S. Kinnebrew, Nishanth Shankaran, Gautam Biswas, and Douglas C. Schmidt, "Toward Effective Multi-capacity Resource Allocation in Distributed Real-time and Embedded Systems", Proceedings of the 11th IEEE International Symposium on Object/Component/Service-oriented Real-time Distributed Computing, Orlando, Florida, May 5-7, 2008.
6. Nilabja Roy, Nishanth Shankaran, and Douglas C. Schmidt, "Bulls-Eye: A Resource Provisioning Service for Enterprise Distributed Real-time and Embedded Systems", Proceedings of the International Symposium on Distributed Objects and Applications (DOA), Montpellier, France, Oct 30th - Nov 1st, 2006.

Book Chapters

1. Nilabja Roy and Douglas C. Schmidt, "Model-Driven Performance Evaluation of Web Application Portals", Model-Driven Domain Analysis and Software Development: Architectures and Functions, a book edited by Janis Osis and Erika Asnina, 2010 (To appear).
2. Daniel G. Waddington, Nilabja Roy, and Douglas C. Schmidt, "Dynamic Analysis and Profiling of Multi-threaded Systems", *Designing Software-Intensive Systems: Methods and Principles*, Edited by Dr. Pierre F. Tiako, Langston University, OK, April, 2008.