

Aruna Balasubramanian

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Education

Ph.D, Department of Computer Science, University of Massachusetts Amherst, CGPA: 3.84/4.00, 2005 - Present
M.S, Computer Science, (SUNY) University at Buffalo, CGPA: 3.93/4.00, 2002 - 2004
MSc(Tech), Information Systems, Birla Institute of Technology and Sciences, Pilani, CGPA: 9.4/10, India 1997 - 2002

Research Interest

My research interests are broadly in systems. I am interested in using mathematical tools to develop practical systems. Currently, I am involved in developing algorithms to enable web search, games and other applications from buses, cars etc. System building in this environment is challenging because of intermittent connectivity, resource constraints and limited feedback.

Experience

Intern May, 2007 - Aug, 2007
Microsoft Research Redmond, USA
Building infrastructure for web access from shuttles in the microsoft campus.

Research Assistant 2005 - Present
Brian Levine and Arun Venkataramani University of Massachusetts, Amherst
Enabling access to search and game applications in networks with intermittent connectivity (from buses, cars etc).

Software Engineer 2004-2005
CompSys Technologies Inc Buffalo, NY
Software design and development for analyzing cost-efficiency tradeoffs in ad hoc networks.

Research Assistant 2002-2004
Ramalingam Sridhar University at Buffalo, NY
Key management in ad hoc networks.

Intern, Network Protocol Group 2001-2002
Novell Inc Bangalore India
Utility tools for debugging and packet trace for NetWare 6.0.

Conference Publications

1. A. Balasubramanian, Y. Zhou, W. B. Croft, B. N. Levine and A. Venkataramani, Thedu: Searching the Web from a Bus (Under Submission)
2. A. Balasubramanian, B. N. Levine and A. Venkataramani, DTN Routing as a Resource Allocation Problem, ACM SigComm, Kyoto, Japan, August, 2007
3. A. Balasubramanian, S. Mishra and R. Sridhar, Analysis of a Hybrid Key Management Solution for Ad hoc Networks, IEEE WCNC, New Orleans, USA, March 2005 (Part of Masters Thesis)
4. A. Balasubramanian, J. Ghosh, and X. Wang, Reputation Based Scheme for Stimulating Cooperation in Ad hoc Networks, 19th International Teletraffic Congress (ITC), Beijing, China, Aug, 2005
5. K. Ramakrishnan, A. Balasubramanian, S. Mishra and R. Sridhar, Wireless Security Protocol using a Low Cost Pseudo Random Number Generator, Milcom 2005, October 17-20, 2005

Project Details

Microsoft Research:

Developing algorithm to allow passengers on a shuttle to access the Internet. The algorithm is backwards compatible and the users can use the same browser interface to browse from a shuttle.

UMass, Amherst:

1. Developed a routing algorithm RAPID (Resource Allocation Protocol for Intentional DTN Routing) to route application level packets.
2. Implemented RAPID on a testbed platform.
3. Developed of a search application over using RAPID to provide web search capabilities from cars and other vehicles.

CompSys Technologies:

Theoretically studied the trade-off in terms of cost and efficiency in deploying a key management protocol for different types of ad hoc networks. Specifically, studied ad hoc networks of three kinds: those within a short range of each other, intermediate range and extremely long range.

University at Buffalo:

Developed a key management protocol for ad hoc networks where coordination among nodes is not always possible. Analyzed the key management protocol via simulations.

Services and Awards

1. Attending the Grace Hopper Conference for Women in Computing
2. Passed PhD candidacy exam with *distinction* (Given to 1 or 2 students per year)
3. Participated in the CRA-W Grad Cohort for women in computer science in the year 2006 and 2007
4. Coordinator of the *CS Women's group* for women in computer science at UMass
5. Placed in the top 5 % of the Indian Math Olympiad

References

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Prof. Ramalingam Sridhar
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