

Vijay Raman

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Dept. of Electrical & Computer Engineering, and
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University of Illinois at Urbana-Champaign
Urbana, IL 61801, USA.

U.S. Visa Status: F1

Objective

To seek an intern position in a wireless networking research group.

Academics

- **Ph.D. Program (Electrical & Computer Engineering) (Aug. 2006 onward)**
University of Illinois at Urbana-Champaign
Adviser: Prof. Nitin H. Vaidya Working on multichannel wireless protocols and system design
- **Master of Science (Electrical & Computer Engineering) (Dec. 2008)**
University of Illinois at Urbana-Champaign
Adviser: Prof. Nitin H. Vaidya
Thesis: Dealing with Adjacent Channel Interference Effects in Multichannel, Multi-Interface Wireless Networks
- **Bachelor of Technology (Electronics Engineering) (Apr. 2004)**
Madras Institute of Technology, Anna University, Chennai
CGPA: 9.2/10.0 (Gold medalist)
Thesis: Transmit Power Optimization in OFDM-MIMO Systems

Research Interests

- MAC and network layer protocols and system design for wireless networks.

Publications

• Journal Publications

- V. Raman and I. Gupta, “Performance Tradeoffs Among Percolation-based Broadcast Protocols in Wireless Sensor Networks”, to appear in the International Journal of Parallel, Emergent, and Distributed Systems.

• Conference Publications

- V. Raman and M.C. Caesar, “A Practical Approach for Providing QoS in Multichannel Ad-Hoc Networks using Spectrum Width Adaptation”, accepted for publication at the IEEE Globecom, 2009.
- V. Raman and I. Gupta, “Performance Tradeoffs Among Percolation-based Broadcast Protocols in Wireless Sensor Networks”, in the proceedings of WWASN Workshop (held with ICDCS), 2009.
- S. Kalyanasundaram, V. Ramachandran, and V. Raman, “Signaling Reduction in Idle Mode for Inter-Technology Mobility”, in the proceedings of the IEEE VTC, Spring 2007.
- M. Dillon, A. Diwan, C. Murphy, and V. Raman, “Evaluating the Opportunity for Optimization of Various RF Parameters in IEEE 802.16e Multi-Cell Network”, in the proceeding of the IEEE VTC, Fall 2006.
- V. Raman and S. Kalyanasundaram, “Performance Analysis of the Distance-Based Location Update Mechanism of CDMA 1x EV-DO,” in the proceedings of the IEEE Globecom Conference, December 2005.

• Recent Technical Reports

- V. Raman and N.H. Vaidya, “A Static-Hybrid Approach for Providing Low Delay Routing for Real Time Applications”, Technical Report, August 2009.
- V. Raman and N.H. Vaidya, “Adjacent Channel Interference Reduction in Multichannel Wireless Networks Using Intelligent Channel Allocation”, Technical Report, August 2009.

Work Experience

Academic (at UIUC)

- Research Assistant at **Coordinated Science Laboratory** (Aug 2006-present), in the Wireless Networking Group (<http://www.crhc.uiuc.edu/wireless>). Working on MAC and routing protocols for provisioning QoS over multichannel, multi-radio (MCMR) wireless networks. Developed and implemented (at the kernel level) a protocol for providing low delay routes for VoIP over MCMR networks. Designed and simulated a scheme for adapting spectrum widths for providing QoS in MCMR networks. Previously worked on protocols for channel allocation to minimize adjacent channel interference in multichannel wireless networks and implemented it on a Linux-based testbed called Net-X.
- Teaching Assistant for **ECE 438 Communication Networks** (Fall 2008). Responsible for designing programming exercises on UNIX network programming, preparing homework and exam solutions, and conducting office hours.

Industry

- Software Engineer at **Motorola India Electronics Ltd.** (Oct 2004-June 2006), in the Network Advance Technologies research group. Worked on 3GPP, WiMAX, and IETF standards development. Responsibilities included algorithms design and performance analysis for PHY, MAC, and network layers for CDMA 1x, CDMA 1x EVDO, 802.16e and 3GPP technologies. Co-authored two IETF drafts submitted to the NETLMM working group and a contribution each on 3GPP LTE RAN2/3, WiMAX NWG, and IEEE 802.21 standards documents.
- Programmer Analyst Trainee at **Cognizant Technology Solutions Pvt. Ltd.** (June 2004-Oct 2004), in the Offer Framework Systems (OFS) division. Worked as a trainee for designing data model for data-marting customer feedback for Cendant Travel Link Group from an Oracle 9i database.

Skills

- Languages: C (familiar with kernel programming), Bash; Familiar - Perl
- Tools: ns2, Matlab
- Platforms: Linux, Windows

Disclosures (while at Motorola)

- An algorithm for backoff mechanism in IEEE 802.16, filed in Indian Patents Office, 2006.
- An algorithm for scheduling bandwidth request messages in IEEE 802.16, filed in Indian Patents Office, 2006.
- An algorithm for directional distance-based location update mechanism based on the knowledge of mobility patterns of the mobiles, filed in Indian Patents Office, 2006.

Relevant Coursework at UIUC

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| Random Processes (ECE 534) | Wireless Communications (ECE 559VV) | Internetworking (CS 598) |
| Information Theory (ECE 563) | Topics in Communications (ECE 559PRK) | Algorithms (CS 473) |
| Communications II (ECE 461) | Wireless Networks (ECE 498NHV) | Advanced Distributed Systems (CS 525) |
| Communication Network Analysis (ECE 567) | Introduction to Optimization (ECE 490) | Computer Security 1 (ECE 422) |
| Computer Systems Analysis (ECE 541) | Distributed Algorithms (ECE 598NV) | Logic Design (ECE 462) |

Awards and Honors

- Student Member, IEEE and IEEE Communication Society.
- Awarded “Level 1 Significant Participation” standards award in recognition of significant contributions to key standards programs in IETF, 3GPP RAN 2/RAN 3, WiMAX Network Working Group at Motorola, in 2006.
- Awarded the “Bravo Award” in recognition and appreciation of excellent contributions to projects undertaken, and two pursued patents at Motorola, in 2006.
- Chosen as one of the top 10 innovators of Motorola India for the year 2005.
- Awarded the Anna University Gold Medal, and several other endowments and prizes for academic excellence, in 2004.