

## Pravin Shankar

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**Areas of Interest** Mobile systems, wireless networks, vehicular networks, pervasive computing, social networks, systems security, location privacy and distributed systems.

**Education** *PhD Candidate* in Computer Science Fall 2004 - Present  
Rutgers University, NJ Advisor: Dr. Liviu Iftode Current GPA: 3.9

*M.Sc.* in Software Engg. (5 year Integrated Masters) Aug 1998 - May 2003  
PSG College of Technology, Coimbatore, India GPA: 3.67

**Academic Honors**

- University and Louis Bevier Dissertation Fellowship 2010-2011. One of 12 awardees across all programs in the graduate school.
- Teaching/Research Asst at CS Dept., Rutgers University. Fall 2004 to Present
- DIMACS Graduate Student Award. Winter 2007-08

**Work Experience** **IBM T J Watson Research Center** Research Intern  
Hawthorne, NY Summer 2010  
Querying Mobile Phones for Real-time Location-based State

- Designed and developed a system, SocialTelescope, for sharing and real-time querying of personal state using mobile phones, across a social network.

**Siemens Corporate Research** Research Intern  
Princeton, NJ Summer 2007  
Context-Aware Opportunistic Scheduling for Vehicular Networks (VANETs)

- Developed an algorithm for opportunistic packet scheduling in VANETs which uses context information (speed and distance from neighboring cars) to determine the optimal transmission schedule while avoiding the need for channel probing.

**Telcordia Research Lab** Research Intern  
Piscataway, NJ Summer 2005  
Designed an IP Multimedia Subsystem (IMS) based platform for application services creation and execution

- Developed a service creation platform for creating, testing and deploying IMS services and built a working prototype of Call Notification service using this platform.

**Novell Inc.** Senior Software Engineer  
Bangalore, India May 2003 - July 2004  
Developer - Novell Zenworks Desktop and Server Remote Management solution

- Involved in the development of Linux and Solaris hardware scanner modules of Novell ZenWorks. Promoted to Senior Software Engineer within one year of joining.

**Novell Inc.** Intern  
Bangalore, India Nov 2002 - May 2003  
Design and implementation of an efficient multicast routing algorithm

- Designed and implemented Protocol Independent Multicast - Dense Mode (PIM-DM) routing protocol on the TCP/IP Protocol Stack of Novell NetWare 6

**Novell Inc.** Intern  
Bangalore, India Apr 2001 - Nov 2001  
Remote network configuration and monitoring tool for Novell NetWare 6.

- Designed and implemented a tool for remote configuration and monitoring of the TCP/IP stack. The tool was subsequently integrated into Novell NetWare 6.

## Publications

- Crowds replace Experts: Building Better Location-based Services using Mobile Social Network Interactions  
Pravin Shankar, Woody Huang, Paul Castro, Badri Nath, Liviu Iftode. Under submission.
- Emergence of hierarchy in directed online social networks  
Mangesh Gupte, Pravin Shankar, Jing Li, Muthu Muthukrishnan, Liviu Iftode. In Proceedings of the 20th International World Wide Web Conference (WWW 2011), March, 2011.
- SBone: Personal Device Sharing Using Social Networks  
Pravin Shankar, Badri Nath, Liviu Iftode, Vancheswaran Ananthanarayanan, Lu Han. Rutgers University Technical Report DCS-TR-666.
- Ad-hoc Voice-based Group Communication  
Lu Han, Stephen Smaldone, Pravin Shankar, Liviu Iftode. In Proceedings of the 8th IEEE International Conference on Pervasive Computing and Communications (PERCOM 2010), March-April, 2010.
- News Posting by Strategic Users in a Social Network  
Mangesh Gupte, MohammadTaghi Hajiaghayi, Lu Han, Liviu Iftode, Pravin Shankar and Raluca Ursu. In Proceedings of the 5th International Workshop on Internet and Network Economics (WINE 2009), December 2009.
- Privately Querying Location-based Services with SybilQuery  
Pravin Shankar, Vinod Ganapathy, Liviu Iftode. In Proceedings of the 11th International Conference on Ubiquitous Computing (UbiComp 2009), September 2009.
- CARS: Context Aware Rate Selection for Vehicular Networks  
Pravin Shankar, Tamer Nadeem, Justinian Rosca, Liviu Iftode. In Proceedings of the 16th IEEE International Conference on Network Protocols (ICNP 2008), October 2008.
- RoadSpeak: Enabling Voice Chat on Roadways using Vehicular Social Networks  
Stephen Smaldone, Lu Han, Pravin Shankar and Liviu Iftode. In Proceedings of the 1st International Workshop on Social Network Systems (SocialNets'08, in conjunction with EuroSys), April 2008.
- The Impact of DSRC Channel Switching on TCP Performance  
Pravin Shankar, Liviu Iftode. Rutgers Technical Technical Report, July 2008.
- Effect of Antenna Placement and Diversity on Vehicular Network Communications  
Sanjit Kaul, Kishore Ramachandran, Pravin Shankar, Sangho Oh, Marco Gruteser, Ivan Seskar, Tamer Nadeem. In Proceedings of the 4th IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON 2007), June 2007.
- A Comparative Study of Data Dissemination Models for VANETs  
Tamer Nadeem, Pravin Shankar and Liviu Iftode. 3rd International Conference on Mobile and Ubiquitous Systems: Networks and Services (MOBIQUITOUS 2006), July 2006.
- Indoor Localization Using Camera Phones  
Nishkam Ravi, Pravin Shankar, Andrew Frankel, Ahmed Elgammal and Liviu Iftode. In the Proceedings of the 7th IEEE Workshop on Mobile Computing Systems and Applications (WMCSA 2006), April 2006.

## Talks

- Improving Privacy and Cost in Location-based Services, Invited talk at Palo Alto Research Center (PARC), October 2010.
- Privately Querying Location-based Services with SybilQuery, IBM Student Workshop for Frontiers of Cloud Computing , September 2010.
- Querying Mobile Phones using SocialTelescope, Department TechTalk, Enterprise Collaboration Department, IBM TJ Watson Research Center, Hawthorne, NY, August 2010.
- Privately Querying Location-based Services with SybilQuery, the 11th International Conference on Ubiquitous Computing (UbiComp 2009), Orlando, FL, September 2009.

- CARS: Context Aware Rate Selection for Vehicular Networks, the 16th IEEE International Conference on Network Protocols (ICNP 2008), Orlando, FL, October 2008.
- A Content Delivery Protocol for Vehicles using Hybrid Wifi/3G Networks, The 3rd Helsinki-Rutgers PhD Student Workshop on Spontaneous Networking, Rutgers University, NJ, May 2008.
- Context Aware Rate Adaptation for Vehicular Adhoc Networks, The 2nd Helsinki-Rutgers PhD Student Workshop on Spontaneous Networking, Helsinki, Finland, May 28 - June 1, 2007.
- Designing an Inter-vehicular network stack for Car-to-Car communication, Phenix Workshop, IRISA, Rennes, France, December 2005.
- Service Creation and Execution Platform for IP Multimedia Subsystem (IMS), Strategic Project Demo, Telcordia Applied Research, August 2005.

## Patents

- System and Method for Personal Device Sharing using Online Social Networks. Pravin Shankar, Badri Nath, Liviu Iftode, filed as provisional Patent Application 2010P117465-011100US.
- Information Posting by Strategic Users in a Social Network. Mangesh Gupte, MohammadTaghi Hajiaghayi, Lu Han, Liviu Iftode, Pravin Shankar and Raluca Ursu, filed as provisional Patent Application 2009P1209-1065US.
- Context Aware Rate Selection for Vehicular Networks. Pravin Shankar, Liviu Iftode, Tamer Nadeem, Justinian Rosca, filed as provisional Patent Application 2007P11191US.

## Other Projects

### TrafficView

September 2005 - Apr 2007

TrafficView is a system that uses car-to-car wireless communication to exchange both immediate and distant traffic-related information for real-time safety warnings and route planning. Implemented a prototype of the TrafficView system and performed an outdoor demonstration of the system with 5 cars.

Demo link: <http://discolab.rutgers.edu/traffic/tvdemo.html>

## Skills

- *Systems Programming*: Linux wireless networking stack, Sockets programming (TCP/IP), libpcap, driver-level programming experience (Madwifi, Intel IPW2200), Click modular router, OpenMoko (ARM).
- *Languages*: C, C++, Python, Perl, Java, HTML/Javascript, Shell Scripting (sed/awk).

## Service

- ACM and IEEE student member.
- Invited as an external reviewer for major conferences and journals including Usenix ATC, ICDCS, Pervasive, Ubiquitous, ACM MASS, IEEE WCNC, WIVEC, IEEE Transactions on Mobile Computing, Transactions on Vehicular Technology and IEEE Pervasive Computing.

## References

- Dr. Liviu Iftode, Professor, Dept. of CS, Rutgers University. [iftode@cs.rutgers.edu](mailto:iftode@cs.rutgers.edu)
- Dr. Vinod Ganapathy, Asst Professor, Dept. of CS, Rutgers University. [vinodg@cs.rutgers.edu](mailto:vinodg@cs.rutgers.edu)
- Dr. Badri Nath, Professor, Dept. of CS, Rutgers University. [badri@cs.rutgers.edu](mailto:badri@cs.rutgers.edu)
- Dr. Woody Huang, Researcher, IBM TJ Watson Research Center, Hawthorne, NY. [ywh@us.ibm.com](mailto:ywh@us.ibm.com)
- Dr. Paul Castro, Researcher, IBM TJ Watson Research Center, Hawthorne, NY. [castrop@us.ibm.com](mailto:castrop@us.ibm.com)