

Manish M. Kochhal

manishk@wayne.edu

www.cs.wayne.edu/~manishk

Dept. of Electrical & Computer Engineering
Wayne State University
5200 Anthony Wayne Dr., Apt. 1312, Detroit, MI 48202-3983

(313) 577-3427 (Work)
(313) 577-6868 (Fax)
(313) 207-2470 (Cell)

EDUCATION

Ph.D. in Computer Engineering, expected August 2006

Wayne State University, Detroit, Michigan

Dissertation: “Role-based Middleware for Wireless Sensor Networks”

Advisor: Dr. Loren Schwiebert

M.S. in Computer Engineering, December 2002

Wayne State University, Detroit, Michigan

Thesis: “An Efficient Core Migration Protocol for Providing QoS in Wireless Mobile Ad hoc Networks (MANET)”

Advisor: Dr. Loren Schwiebert

B.E. in Electronics Engineering, June 1998

Shah and Anchor Kutchhi Engineering College, University of Bombay, Bombay, India

RESEARCH INTERESTS

- Programming Abstractions for Distributed Systems
- Distributed Middleware
- QoS Protocols for Wireless Networks
- Cross Layer Protocol Optimizations
- Applications, Simulation, and Modeling

PUBLICATIONS

Book Chapter

- M. Kochhal, L. Schwiebert, and S. K. S. Gupta, “Self Organization of Wireless Sensor Networks,” to appear in *Theoretical and Algorithmic Aspects of Sensor, Ad Hoc Wireless, and Peer-to-Peer Networks*, J. Wu, editor, CRC Press, 2004.

Refereed Journal Publications

- M. Kochhal, L. Schwiebert, and S. K. S. Gupta, “Integrating Sensing Perspectives for Better Self Organization of Ad hoc Wireless Sensor Networks,” *Journal of Information Science and Engineering*, Vol. 20, No. 3, pages 449–475, May 2004.

Refereed Conference and Workshop Publications

- M. Kochhal, L. Schwiebert, and S. K. S. Gupta, “Role-based Hierarchical Self Organization for Ad hoc Wireless Sensor Networks,” *2nd ACM International Workshop on Wireless Sensor Networks and Applications (WSNA)*, pages 98–107, September 2003.
- M. Kochhal, L. Schwiebert, S. K. S. Gupta, and C. Jiao, “An Efficient Core Migration Protocol for QoS in Mobile Ad Hoc Networks,” *21st IEEE International Performance, Computing, and Communications Conference (IPCCC)*, pages 387–391, April 2002.
- A. Salhieh, J. Weinmann, M. Kochhal, and L. Schwiebert, “Power Efficient Topologies for Wireless Sensor Networks,” *30th Annual International Conference on Parallel Processing (ICPP)*, pages 156–163, September 2001.
- L. Schwiebert, S. K. S. Gupta, J. Weinmann, A. Salhieh, M. Kochhal, and G. Auner, “Research Challenges in Wireless Networks of Biomedical Sensors,” *7th Annual International Conference on Mobile Computing and Networking (MOBICOM)*, pages 151–165, July 2001.

Technical Reports

- M. Kochhal, L. Schwiebert, and S. K. S. Gupta, “Role-based Middleware for Wireless Sensor Networks,” Wayne State University, WSU-CSC-NEWS/04-TR01, May 2004.

Paper Submissions

- M. Kochhal, L. Schwiebert, and S. K. S. Gupta, “QoS-aware Core Migration for Efficient Multicast in Mobile Ad hoc Networks,” *Elsevier Ad hoc Networks Journal*, submitted for publication, July 2004.

RELEVANT PROFESSIONAL SKILLS

Programming Languages

- nesC, C, C++, Java, Assembly (Intel x86), Perl, Sed, Awk, & Tcl

Parallel/Distributed Libraries

- Solaris Threads, Pthreads, MPI, & Java RMI

Network Programming and IPC

- RPC, Sockets, Message Queues, Mutexes, & Semaphores

Application Tools

- Visual InterDev 6.0, JBuilder, & Cradle’s UMS Inspector IDE

Operating Systems

- UNIX, LINUX, Solaris, MINIX, & Windows

Embedded Platforms

- Cradle’s UMS (Universal MicroSystems), uC-OS II, & TinyOS

Simulators

- SimJava 1.2 & UCB/ISI-Network Simulator (NS-2)

Networking Protocols

- TCP/IP, Bluetooth, CDMA, 3G, IEEE 802.11b, MANETs, & WSNs

RESEARCH AND ACADEMIC EXPERIENCE

Graduate Research Assistant Jan. '01 - May '05.
Networking Wireless Sensors (NeWS) Lab, Wayne State University.

Graduate Fellow Jun. '04 - Aug. '04.
Graduate School, Wayne State University.

Recipient of a Summer Dissertation Fellowship, a competitive fellowship available to doctoral candidates throughout the university. This fellowship is intended for graduate students who are within a year of completing their Ph.D. dissertation.

Course Instructor, ECE 3580, "Electronics Lab" Sept. '00 - Dec. '00.
Dept. of Electrical and Computer Engineering, Wayne State University.

Course Instructor, ECE 3610, "Digital Logic I" June '00 - Aug. '00.
Dept. of Electrical and Computer Engineering, Wayne State University.

Course Instructor, ECE 2620, "Introduction to Microcomputers" Jan. '00 - May '00.
Dept. of Electrical and Computer Engineering, Wayne State University.

Lecturer, "Electronic Systems Design" Jan. '99 - Apr. '99.
Dept. of Electronics Engineering, Thadomal Shahani Engineering College, University of Bombay, India.

As an instructor for these labs and courses, my responsibilities included:

- Developing the lab/course syllabus, class handouts and notes.
- Selecting the textbook and other references.
- Preparing assignments, quizzes and exams.
- Providing hardware debugging in lab sessions.
- Working with systems staff to maintain experimental hardware and instrumentation.
- Grading lab/homework assignments, quizzes and exams.
- Holding regular office hours.

ACADEMIC HONORS and AWARDS

- NSF student travel grant, ACM SenSys 2004 conference, Baltimore, MD, USA.
- Dissertation fellowship, summer 2004, Graduate School, Wayne State University.
- Ranked top 3 among 120 students in B.E., Shah and Anchor Kutchhi Engineering College, 1994–1998, Bombay, India.
- Scholarship for higher studies abroad, Sahu Jain Trust, 1999, New Delhi, India.
- Scholarship for undergrad. studies, Sir Ratan Tata Trust, 1995–1998, Bombay, India.

PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronics Engineers (IEEE)
IEEE Communications Society (ComSoc)
Association for Computing Machinery (ACM)
ACM SIGMOBILE

CONFERENCE AND WORKSHOP REFEREEING

Workshop on Mobile and Wireless Networks (MWN 2003), International Performance Computing and Communications Conference (IPCCC 2004), IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS 2004), International Conference on Distributed Computing Systems (ICDCS 2003), European Workshop on Wireless Sensor Networks (EWSN 2004).

REFERENCES

Dr. Loren Schwiebert
Associate Professor
Dept. of Computer Science
Wayne State University
428 State Hall, 5143 Cass Avenue
Detroit, MI 48202-3929
(313) 577-5474
loren@wayne.edu

Dr. Sandeep K. S. Gupta
Associate Professor
Dept. of Computer Science and Engineering
Arizona State University
428 Goldwater Center, Telecommunication Research Center
Tempe, AZ 85287-5406
(480) 965-3806
sandeep.gupta@asu.edu

Dr. Cheng-Zhong Xu
Associate Professor
Dept. of Electrical and Computer Engineering
Wayne State University
3117 Engineering Building, 5050 Anthony Wayne Dr.
Detroit, MI 48202-3902
(313) 577-3856
czxu@ece.eng.wayne.edu

Dr. Vipin Chaudhary
Associate Professor
Dept. of Computer Science
Institute for Manufacturing Research
Associate Director of Institute for Scientific Computing
Wayne State University
422 State Hall, 5143 Cass Avenue
Detroit, MI 48202-3929
(313) 577-5421
vipin@wayne.edu