

Ketan Mandke

CONTACT INFORMATION	Wireless Networking and Communications Group The University of Texas at Austin 1 University Station, Mail code: C0806 Austin, Texas 78712	<i>phone:</i> (512) 232-7943 <i>e-mail:</i> kmandke [at] mail.utexas.edu <i>web:</i> http://www.ece.utexas.edu/~mandke
RESEARCH INTERESTS	Cross-layer protocol design, cooperative diversity, relay networks, MAC protocol design, software defined radio systems implementation and design.	
EDUCATION	The University of Texas at Austin	
	Ph.D., Electrical Engineering	expected Fall 2010
	<ul style="list-style-type: none">• Advisor: Scott M. Nettles• Area: Communications, Networks, and Systems	
	M.S., Electrical Engineering	2002 - 2004
	B.S., Electrical Engineering	1998 - 2001
EXPERIENCE	The University of Texas at Austin Austin, TX	
	<i>Graduate Research Assistant</i>	2006 - present
	<ul style="list-style-type: none">• Development of software architecture for Hydra - a wireless multihop testbed.• Experimental evaluation of adaptive wireless protocols.	
	<i>Teaching Assistant</i>	2002 - 2008
	<ul style="list-style-type: none">• Wireless Communications Lab, September 2005 - May 2006. Developed code and lab manual for in-lab component of course during Fall semester. Teaching Assistant in Spring.• Data Structures, September-December 2007, September-December 2008.• Computer Architecture, June-August 2002. Administered computer architecture lab and taught students about architecture of the LC-2 microcontroller.	
	Sandia National Laboratories	Albuquerque, NM
	<i>Graduate Student Intern</i>	May - August, 2005
	<ul style="list-style-type: none">• Developed simulation for channel modeling of networked objects in space.• Surveyed research literature on cooperative techniques in wireless communication.	
	National Instruments	Austin, TX
	<i>Engineering Intern</i>	May - August, 2001
	<ul style="list-style-type: none">• Redesigned interpolation filters for Dynamic Signal Analyzer (DSA) product.• Developed VHDL design and LabVIEW code to simulate design.	
	Texas Instruments	Houston, TX
	<i>Co-op in C6x DSP Group</i>	May - August, 2000
	<ul style="list-style-type: none">• Designed and developed Board Support Library (BSL) for DSP development board.	
HONORS AND AWARDS	Grand Prize Award for WinCool Wireless Networking Demo Contest	September 2008
	WiNTECH Workshop at ACM MobiCom 2008, San Francisco, CA	
	Thrust 2000 Fellowship	2002-2006
	Microelectronics and Computer Development Fellowship, UT Austin	2002-2004
	The University of Texas Engineering Honors Program	1998-2002

PROGRAMMING

- Open-source Packages: GNU Radio (SDR toolkit), Click Modular Router, IT++ (communications library), SimPy (discrete event simulator), NS-2 (network simulator).
- Languages: C/C++, Python, Java, VHDL, Verilog, Matlab, LabVIEW™ (“G” Language).
- Hardware: National Instruments PXI RF platform (5421, 5600, 5610, 5620), Universal Software Radio Peripheral (USRP) from Ettus Research; limited experience with Motorola 68k family, Texas Instruments C6x and C3x DSP.
- Other: Also familiar with Subversion, Bash scripting, PHP, and HTML.

CURRENT PROJECTS

Hydra: *A Flexible Multi-antenna, Multihop Wireless Testbed*

This cross-layer testbed features a completely software-defined protocol architecture. It is implemented using the Click modular router, GNU Radio, and USRP RF boards. The goal of this ongoing project is to utilize this flexible testbed for real-world performance evaluation and validation of new algorithms and protocols.

WiNS: *Wireless Network Simulator*

A network simulator built on top of the event-driven simulation environment of SimPy. The emphasis of this design is on flexibly modeling the wireless channel as well as the network, MAC, and PHY layers. The simulator will be used to investigate cooperative communication and cross-layer design.

PUBLICATIONS

K. Mandke, R. C. Daniels, S. M. Nettles, and R. W. Heath, Jr., “On the Challenges of Building a Multi-antenna Software Defined Packet Radio,” Proceedings of the SDR 08 Technical Conference and Product Exposition, Washington, D.C., Oct. 2008.

R. C. Daniels, K. Mandke, K. T. Truong, S. M. Nettles, and R. W. Heath, Jr., “Throughput/Delay Measurements of Limited Feedback Beamforming in Indoor Wireless Networks,” Proc. of the IEEE Global Comm. Conf., New Orleans, LA, Nov. 2008.

K. Mandke, R. Daniels, S. Choi, R. W. Heath, Jr., and S. Nettles, “Physical Concerns for Cross-Layer Prototyping in Wireless Network Experimentation,” Proc. of Second ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization (WiNTECH), Montreal, Canada, September 10, 2007.

K. Mandke, S. Choi, G. Kim, R. Grant, R. Daniels, W. Kim, R. W. Heath, Jr., and S. Nettles, “Early Results on Hydra: A Flexible MAC/PHY Multihop Testbed,” Proc. of IEEE Vehicular Tech. Conf., Dublin, Ireland, April 23 - 25, 2007.

T. Tang, K. Mandke, C. Chae, R. W. Heath, S. M. Nettles, “Multichannel Feedback in OFDM Ad Hoc Networks,” IEEE SECON '06, vol.2, pp. 701-706, 2006.

K. Mandke, T. S. Rappaport, et. al., “The Evolution of Ultra Wide Band Radio for Wireless Personal Area Networks,” High Frequency Electronics, vol. 2, no. 5, pp.2232, Sept. 2003.