

# Muhammad Nazmul Islam

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CONTACT INFORMATION	Graduate Assistant, WINLAB Department of Electrical & Computer Engineering RUTGERS, State University of New Jersey	Cell: +908 202 6580 email: mmislam@winlab.rutgers.edu
RESEARCH INTERESTS	Wireless Communication (both algorithm & implementation level)	
EDUCATION	<b>RUTGERS, State University of New Jersey</b> , New Brunswick, NJ, USA	
	<i>PhD in Electrical &amp; Computer Engineering</i>	Sep '10 – present
	<ul style="list-style-type: none"><li>• <i>Thesis</i>: Bandwidth Exchange in Cognitive Radio Networks</li><li>• <i>Advisor</i>: Dr. Narayan Mandayam,      • <i>CGPA</i>: 4.00</li></ul>	
	<b>University of Toronto (UofT)</b> , Toronto, ON, Canada	
	<i>MASc in Electrical &amp; Computer Engineering</i>	Sep '08 – Aug '10
	<ul style="list-style-type: none"><li>• <i>Thesis</i>: Linear Precoding in Multiuser Wireless Communications</li><li>• <i>Advisor</i>: Dr. Raviraj Adve,      • <i>CGPA</i>: 3.87</li></ul>	
	<b>University of New Hampshire (UNH)</b> , Durham, NH, United States	
	<i>BSc in Electrical Engineering</i>	September 2006 – May 2008
	<ul style="list-style-type: none"><li>• <i>Senior Thesis</i>: Active Noise Cancellation Headsets, <i>Research Supervisor</i>: Dr. Gordon Kraft</li><li>• <i>CGPA</i>: 3.98      • <i>CGPA in Major</i>: 4.00</li><li>• <i>Rank</i>: 1/25 in the department and 2/232 in the college</li></ul>	
	<b>Bangladesh University of Engineering and Technology (BUET)</b> , Dhaka, Bangladesh	
	<i>Electrical and Electronics Engineering, Transferred to UNH in 2006</i>	2003 – 2006
	<ul style="list-style-type: none"><li>• <i>CGPA</i>: 3.96      • <i>CGPA in Major</i>: 3.97</li><li>• <i>Rank</i>: 2/130 in the department and 3/755 in the college</li></ul>	
CONFERENCE PUBLICATIONS	C8. <b>M. N. Islam</b> , N. Mandayam and S. Kompella. "Optimal Resource Allocation and Relay Selection in Bandwidth and Time Exchange Based Cooperative Forwarding", <i>INFOCOM 2012</i> , June, 2012. <i>To be Submitted</i>	
	C7. <b>M. N. Islam</b> , N. Mandayam and S. Kompella, "Optimal Resource Allocation in a Bandwidth Exchange Enabled Relay Network", <i>MILCOM 2011</i> , Nov, 2011. <i>Accepted</i>	
	C6. <b>M. N. Islam</b> and R. Adve, "Adaptive Differential Feedback in Time Varying Multiuser MIMO Channels", <i>PIMRC 2011</i> , Sep, 2011. <i>Accepted</i>	
	C5. <b>M. N. Islam</b> and R. Adve, "Linear Transceiver Design in a Multiuser MIMO System with Quantized Channel State Information", <i>ICASSP 2010</i> , pp. 3410-3413, March 14-19, 2010.	
	C4. <b>M. N. Islam</b> and R. Adve, "SMSE Precoder Design in a Multiuser MISO System with limited feedback", <i>25th Biennial Symposium on Communications</i> , pp. 352-356, May 12-14, 2010.	
	C3. <b>M. N. Islam</b> and L. G. Kraft, "CMAC Adaptive Noise Cancellation for Audio Headsets", In <i>Proc. 14th Yale Workshop on Adaptive and Learning Systems</i> , pp. 47-52, June 2-4, 2008.	
	C2. H. Kim, <b>M. N. Islam</b> , L. Long, A. Rucinski, "Embedded System Application: A New Type FPGA-Based Digital Magnetometer System for Space Research", <i>Proc. 1st International Conference on Information Technology</i> , pp. 1-4, May 18-21, 2008.	
	C1. <b>M. N. Islam</b> and L. G. Kraft, "Active Noise Cancellation Headset", In <i>Proc. 22nd National Conference on Undergraduate Research</i> , pp. 100-104, March, 2008.	
JOURNAL PUBLICATIONS	J2. <b>M. N. Islam</b> , R. S. Adve and B. Khosnevis, "Optimal Shape-Gain Quantization for Linearly Precoded Multiuser MIMO Systems", <i>IEEE Transactions on Wireless Communications</i> , to be submitted.	
	J1. <b>M. N. Islam</b> and R. Adve, "Transceiver Design Using Linear Precoding in a Multiuser System with Limited Feedback", <i>IET Journals in Communications</i> . Vol: 5, Issue: 1, pp. 27-38, Jan 2011.	

SELECTED  
COURSEWORK

<ul style="list-style-type: none"> <li>• Statistical Communication Theory</li> <li>• Signal Processing</li> <li>• Error Control Coding</li> <li>• Convex Optimization</li> <li>• Analysis and Control of Stochastic Systems</li> <li>• Introduction to VLSI</li> </ul>	<ul style="list-style-type: none"> <li>• Programming Finance</li> <li>• Introduction to Digital Image Processing</li> <li>• Digital Signals &amp; Filters</li> <li>• Communication Networks I</li> <li>• Information Theory</li> <li>• Optimization of Communication Networks</li> </ul>
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RESEARCH  
EXPERIENCE

**Department of Electrical and Computer Engineering, University of Toronto**

*Research Assistant*

September 2008 – August 2010

*Research Project:* Design linear transceiver algorithms in multiuser wireless communications with finite low rate feedback of channel information

**Department of Electrical and Computer Engineering, University of New Hampshire**

*Undergraduate Research Awardee and Summer Undergraduate Research Fellow* May 07 – May 08

*Research Project:* Design, prototype and test the circuit of feedforward, feedback and adaptive neural network controllers in active noise cancellation headsets.

TEACHING  
EXPERIENCE

**Department of Electrical and Computer Engineering, University of Toronto**

*Teaching Assistant in **Communication Systems** Course*

September 2009 – present

*Teaching Duties:* Conducting Lab Tutorials, Grading lab reports and midterm exams, Invigilating exams.

TUTORING  
EXPERIENCE

**Department of Electrical and Computer Engineering, UNH**

Guided the students in *Signals & Systems-II* and *Computer Organization* course as a Tau Beta Pi study hall tutor

Spring 2007 – Spring 2008

GRE SCORE

Quantitative: 800 (94%), Verbal: 590 (83%), Analytical Writing: 4.5

AWARDS  
& SCHOLARSHIPS

- Golden Key Graduate Scholar Award 2009 – 2010
- University of Toronto Graduate Fellowship, UofT 2008 - 2010
- Boeing Engineering Scholarship 2008-2009
- Summa Cum Laude, UNH Spring, 2008
- Presidential Scholar (among the graduating students of class 2008), UNH Spring, 2008
- Award of Excellence (for the best poster presentation in the design project) Spring, 2008
- Most practical & complete ECE capstone design project Award Spring, 2008
- Undergraduate Research Award (URA) Fall, 2007
- Summer Undergraduate Research Fellowship, UNH Summer, 2007
- Frederick N. Walker Jr. Scholarship, UNH Spring, 2007
- Dean's Scholarship, UNH 2006-2008
- Partnership for Learning Undergraduate Studies (PLUS) Scholarship, US Department of State (Accomplished as the *only student in technical field from Bangladesh*) 2006-2008
- Dean's List, BUET 2003-2006
- Merit Scholarship for twelfth grade exam (Achieved for *being first in own state among one hundred and fifty thousand students*) 2002-2006

SKILLS

<b>Programming Language</b>	C, C++, QBASIC, ASSEMBLY, MATLAB
<b>Simulation Tools</b>	Simulink, PSPICE, CAD Mentor Graphics
<b>Text Editor</b>	Microsoft Office, Latex, HTML

SELECTED  
ACADEMIC  
PROJECTS

- **VLSI:** Designed the Build-Out-Logic-Block-Observer (BOLBO) (IEEE CMP/IP Support Repository Component) Circuits as a contribution in the publication of C2 Fall 2007
- **Signal Processing:** Designed the algorithm of heart sound recognition system using gaussian mixture modeling, principal component analysis and linear discriminant analysis Spring 2009
- **Computer Organization:** Built a microprocessor based door lock control system using assembly language Fall 2006

- **Computer Programming:** Developed a solution for a set of linear equations using Gauss-Jordan elimination in C language
- Spring 2004

MEMBERSHIP &  
PROFESSIONAL  
AFFILIATIONS

- Student Member, IEEE
- Tau Beta Pi & Golden Key International Honor Society Alumni
- US State Department Alumni