Resume:

AMOGH RAJANNA

Address: 616, 10th Avenue SE, Apt #4, Minneapolis, MN-55414, USA.

Email: amoevol@yahoo.co.in
raja0088@umn.edu

Objective: To obtain a graduate assistant position

Education:

MS/PhD (2007-)
Information Theory & Signal Processing in Communication
Department of Electrical & Computer Engineering,
University of Minnesota, Twin Cities, USA.

BS (2002-2006)
Electronics and Communication — First Class 73.77%
SJCE, Visveswaraiah Technological University, India.

Work Experience (07/2006 – 06/2007):

Wireless Communication Engineer, MIMO OFDM group,
ESQUBE Communication Solutions Inc, Bangalore, India.

Developed, tested and debugged MATLAB and C++ code for the *MIMO OFDM based 802.11n Transmitter* with important features like Space Time Block Coding, Cyclic Delay Diversity, Spatial Spreading & Simple Transmit Beamforming.

Undergraduate Program Projects:

Undergraduate Thesis:

Turbo Multiuser Detection in Coded Uplink CDMA Systems: 02/2006 - 05/2006

Our work involved the study of turbo multiuser detection in two environments/systems.

- Turbo multiuser detection in convolutional coded synchronous uplink CDMA system
- Turbo multiuser detection in turbo coded asynchronous uplink CDMA system

The two systems were implemented and performance analysis under different conditions was done.

Main Projects:

1a.) *Subspace Based Blind Linear Multiuser Detector:* 04/2005

For blind multiuser detection in CDMA, a user signature waveform subspace based blind linear decorrelating detector & blind linear MMSE detector was studied and implemented in MATLAB.

2a.) *Spoken Language Recognition:* 02/2005 – 03/2005 Summer Project at CEDT, Indian Institute of Science, Bangalore.

A Hidden Markov Model based spoken language recognizer was studied & implemented in MATLAB. Although this project is related to the field of *Pattern Recognition*, training and testing algorithms for HMM patterns studied & implemented will be useful since HMM 's are recently used in Narrowband Interference suppression in CDMA, Nonlinear equalization of ISI channels.

3a.) *Multi Tone Code Division Multiple Access:* 04/2005 – 05/2005

A MT-CDMA modem was studied & simulation blocks for MT-CDMA transmitter and MT-CDMA receiver was implemented in Simulink using C.

4a.) *Anti Jam Communication System:* 11/2004 – 12/2004

Spread spectrum communication was studied and DS-SS Modem, FH-SS Modem was implemented in Simulink.

Minor Projects:

1b.) *Residual Excited Vocoder:* 11/2004, 15 days

A residual excited Linear Prediction Vocoder was implemented in MATLAB. Implementation includes STP Analysis, SIFT algorithm at the Tx side & the STP Synthesis at the Rx side.

2b.) *Synchronous Digital Systems:* 10/2004

Floating Point Multiplier
Booth's Multiplier
Square Rooter
BCD-Binary Converter
Floating Point Adder/Subtractor
SBI & SBF Divider

The mentioned synchronous digital systems were implemented on a Xilinx FPGA, available in the Electronics & Communication Engineering (ECE) department laboratory using VHDL.

3b.) *Equalization Receiver for ISI Channels:* 04/2006, 15 days

MAP based iterative equalization receiver system for an ISI channel under coded environment was implemented and performance analysis of the system was done.

Design Projects:

1c.) *Adaptive Mixer:*

A Device which can generate the sum/difference frequency signal from the 2 input single tone signals was designed using NCO/DDS AD9832 & microcontroller 8051.

2c.) *Programmable Digital Clock:*

A programmable digital clock using 8085.

Publications:

1.) Amogh.R "*Language identification using ergodic Markov patterns*" Proc. NWST - 05, pp. 95-100, April 2005, Mysore, India. (National Workshop on Speech Technology)

2.) Amogh.R, C.R.Nataraj "*Iterative joint receiver with parallel RAKE structure for multipath coded CDMA*" to appear in Proc. National Conference on Communications, January 26-28, 2007, Kanpur, India.

Awards:

1.) Secured the Ist position in a Hardware design competition *Brain Storm 2005* conducted by ISRO (Indian Space Research Organization) for the design *Adaptive Mixer* during 04/2005.

2.) Best Undergraduate Project was awarded to the project "Anti Jam Communication System" by the college.

3.) The project work "Turbo Multiuser Detection in Coded Uplink CDMA Systems" was one of the two projects selected from a list of 40 for publication and award of merit certificate.

4.) Had secured a percentile rank of 97.61 in the All India Engineering Entrance Exam (AIEEE) 2002.

5.) Had secured a percentile rank of 99.7 in the Common Entrance Test (CET) 2002 in engineering stream.

TOEFL iBT Scores:
Reading: 29/30
Listening: 29/30
Speaking: 23/30
Writing: 28/30

Technical Skills:
Platforms: Linux (Entry Level)
High Level Languages: C, C++
Coordination Languages: Simulink
Computing Languages: MATLAB
Assembly: 8085, x86, TMS320C54, 57x

Relevant Course Work:
Telecommunication & Switching
Information Theory & Coding
Wireless Communication
Analog Communication
Digital Communication

References:
Available on request.