ANANT GUPTA

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EDUCATION

University of California, Santa Barbara, USA Fall 2014-Present
MS-PhD in Electrical and Computer Engineering
G.P.A. 4.0/4.0

IIT Kharagpur, India 2008-2013
Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering
Master of Technology (Dual Degree) Telecommunication Systems Engineering
Cumulative GPA: 8.45/10

RESEARCH PROJECTS

Sensing and Inference using low cost mm-wave systems.
Graduate Advisor: Prof. Upamanyu Madhow, UCSB April 2015-Present

- Developing super-resolution algorithms for localization using multiple sensors in autonomous applications .
- Designing narrow beamforming arrays and geometric placement strategies for improving sensing coverage.

Energy efficient MAC protocols for wireless sensor networks.
Undergraduate Advisor: Prof. Raja Datta, IIT Kharagpur July, 2011-July 2013

- Designed contention resolution protocols (SMAC) for both centralized and ad-hoc sensor networks.
- Analyzed algorithm performance using a Discrete Time Markov chain model and validated through NS2 simulations.

INTERNSHIP PROJECTS

Qualcomm Inc., San Diego, USA Supervisor: Roberto Rimini, Udara Fernando
Close range detection for RF exposure compliance in 5G mm-wave systems Summer 2017
Investigated signal algorithms for object range detection & mutual coupling cancellation in 5G NR terminals.

National Instruments R&D, India Supervisor: Vinay Kumar, Dharmendra Lingaiah
Physical layer design for a NFC transmitter on FPGA. Summer 2012
Developed a NFC transmitter for test equipment targeted at NFC A,B & F tags using NI IF RIO hardware and verified the generated command signals using Agilent MXA analyzer.
FPGA-PC hybrid implementation of fractional re-sampler for NI GPS toolkit. Summer 2011
Implemented the fractional resampling unit to generate composite GPS signals using bank of polyphase filters on LabVIEW FPGA. Analyzed the speedup gained from FPGA parallelization.

PUBLICATIONS & PATENTS

1. R. Rimini, **A. Gupta**, "Proximity detection using adaptive mutual coupling cancellation", U.S. Patent Application 15/984,233, filed May 2018. Patent Pending.
2. **A. Gupta**, U. Madhow, A. Arbabian and A. Sadri, "Design of Large Effective Apertures for Millimeter Wave Systems using a Sparse Array of Subarrays", Transactions on Signal Processing (in preparation)
3. **A. Gupta**, U. Madhow, A. Arbabian and A. Sadri, "On beam design for sparse arrays of subarrays using multi-objective optimization and estimation-theoretic criteria", 51st Asilomar Conference on Signals, Systems and Computers, Nov. 2017, Pacifc Grove, USA.
4. **A. Gupta**, U. Madhow, and A. Arbabian, "Super-resolution in position and velocity estimation for short-range mm wave radar", 50th Asilomar Conference on Signals, Systems and Computers, Nov. 2016, Pacific Grove, USA.

PROFESSIONAL EXPERIENCE

RF Algorithm Software Engineer — National Instruments (NI) R&D, Bangalore, India — Fall 2013-2014

Designed baseband signal processing algorithms for OFDM-MIMO based 802.11n/ac WLAN systems.

TECHNICAL SKILLS

Test and measurement:	NI PXI-based vector signal transceiver, Signal generator, Oscilloscope
Programming Languages:	Python, C/C++
Engineering Tools:	MATLAB, LabVIEW, Network Simulator (NS)-2

ACADEMIC DISTINCTIONS

Awarded Combined GSR (Graduate Student Researcher) +TA (Teaching Assistant) position by Department of ECE, University of California, Santa Barbara for the year 2014-15.
Secured All India Rank of 962 ($< 0.27\%$) in IIT-Joint Entrance Examination 2008.
Secured All India Rank of 217 ($< 0.1\%$) in Graduate Aptitude Test in Engineering 2013 ECE.

POSITIONS OF RESPONSIBILITY

Teaching Assistant	Digital Communication course & lab, UCSB	Oct, 2014-March 2015
	Basic Electronics Lab, IIT Kharagpur	Jan-April, 2013
	Basic Network theory lab, IIT Kharagpur	July-Nov, 2012
Technical Head, Anadigix	Circuit design competition at IIT Kharagpur	January, 2011

GRADUATE COURSEWORK

Matrix Analysis & Computations
Data Structure & Object Representation
Stochastic Processes in Engineering
Adaptive Filter Theory
Optimal Estimation & Filtering
Machine Learning
Pattern Recognition
Non-cooperative Game Theory
Error Correction Codes
Game-theoretic Mechanism Design