

ANANT GUPTA

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OBJECTIVE

Looking for opportunities in areas related to wireless sensing, SLAM, gesture recognition, and IoT based automation.

EDUCATION

University of California, Santa Barbara, USA	G.P.A. 4.0/4.0	2014-Present
Department of Electrical and Computer Engineering (ECE)		
PhD in ECE, Research Focus: Wireless Sensing.		March 2020 (expected)
MS in ECE, Major: Communications and Signal Processing		Dec 2016
IIT Kharagpur, India	G.P.A. 8.45/10	2008-2013
Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering		
Master of Technology (Dual Degree) Telecommunication Systems Engineering		

RESEARCH PROJECTS

<i>Sensing and Inference using low cost mm-wave systems.</i> Advisor: U. Madhow	2015-Present
<ul style="list-style-type: none">Efficient data association algorithms for localization with distributed millimeter wave sensors.Multi-objective optimization to construct large-effective aperture antennas using sparse array of subarray architecture.Enhanced accuracy and Super-Resolution for 2D FMCW radar systems.Strategic array design to optimize sensing coverage.	
<i>Energy efficient MAC protocols for wireless sensor networks.</i> Advisor: R Datta	2011-2013
<ul style="list-style-type: none">Designed contention resolution protocols (SMAC) for centralized and ad-hoc sensor networks.Analyzed performance using a Discrete time Markov chain model and validated with NS2 simulations.	

INDUSTRY EXPERIENCE

Stealth Startup, San Francisco Bay Area, USA: Engineering Intern	Summer 2019
<i>Perception for Autonomy</i> Explored state of the art signal processing algorithms for sensing and imaging applications in the RF domain. Benchmarking and proposing new system level solutions and features.	
Qualcomm Inc., San Diego, USA: Interim Engineering Intern	Summer 2017
<i>Close range detection for RF exposure compliance in 5G mm-wave systems</i> Algorithm design for object range detection & mutual coupling cancellation in 5G NR terminals.	
National Instruments R&D, India: RF Algorithm Software Engineer	2013-2014
<i>Baseband signal processing algorithm design for OFDM-MIMO based 802.11n/ac WLAN.</i> <i>Physical layer design for a NFC transmitter on FPGA.</i> Developed RF interface for testing NFC tags using NI RIO hardware and tested TX signals using Agilent MXA.	
<i>FPGA-PC hybrid implementation of fractional re-sampler for NI GPS toolkit.</i> Reduced the latency of generating composite GPS signals by resampling using polyphase filter banks on FPGA.	

PUBLICATIONS & PATENTS

- R. Rimini, **A. Gupta**, "Proximity detection using adaptive mutual coupling cancellation", U.S. Patent Application 15/984,233, filed May 2018. Patent Pending.
- A. Gupta**, U. Madhow, A. Arbabian and A. Sadri, "Design of Large Effective Apertures for Millimeter Wave Systems using a Sparse Array of Subarrays", IEEE Transactions on Signal Processing (in review)
- A. Gupta** and U. Madhow, "Efficient data association using joint Range-Doppler features for Multisensor-Multitarget State Estimation", IEEE Transactions on Signal Processing (in preparation)
- 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, 2017, Pacific Grove, USA.
- 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, 2016, Pacific Grove, USA.

TECHNICAL SKILLS

<i>Test and measurement:</i>	NI PXI-based vector signal transceiver, Signal generator, Oscilloscope
<i>Programming Languages:</i>	Python, C/C++
<i>Engineering Tools:</i>	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	Machine Learning
Data Structure & Object Representation	Pattern Recognition
Stochastic Processes in Engineering	Non-cooperative Game Theory
Adaptive Filter Theory	Error Correction Codes
Optimal Estimation & Filtering	Game-theoretic Mechanism Design