Soumyadeep Datta

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EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY KANPUR
B.Tech.+M.Tech. in Electrical Engineering
Expected May 2020 | Kanpur, India
Cumulative GPA: 9.5 / 10.0

DON BOSCO SCHOOL
Grad. May 2015| Howrah, India
Senior Secondary | ISC: 98.0%
Secondary | ICSE: 96.6%

COURSEWORK

* - Ongoing, ** - Audit

GRADUATE
Wireless Communications *
MIMO Wireless Communications *
Optical Communications *
Computer Networks *

UNDERGRADUATE
Communication Systems
Digital Signal Processing
Electromagnetic Theory
Principles of Communications
Signals, Systems and Networks
Digital Electronics
Microelectronics I
Control System Analysis
Power Systems
Physical Chemistry (I and II)
Basic Organic Chemistry
Optoelectronics **
Chemical Binding **

SKILLS

PROGRAMMING
Languages :
C • Java • FORTRAN • Python
Software Utilities :
MATLAB • LaTeX • MicroCap • Arduino • VMD • GNUPlot • HTML/CSS

RESEARCH EXPERIENCE

APPLICATION OF DELAY IN MIMO WITH ONE-BIT QUANTIZERS
NYU Tandon School of Engineering, New York, USA
Mentor: Prof Elza Erkip, ECE — May – July 2018
End-Term Report | Repository

- Analyzed the effect of delay at receiver of one-bit quantized MIMO system
- Reviewed extensively existing literature on one-bit quantization in MIMO
- Extended existing models of MIMO system to incorporate unit delay at receiver
- Simulated capacity bounds to show marked improvement with unit delay

DEVELOPMENT OF DENSITY FUNCTIONAL METHODS FOR MOLECULAR COMPUTATION
Indian Institute of Technology Kanpur
Mentor:Dr Nisanth N Nair, Associate Professor, Chemistry — May - July 2017
End-Term Report

- Selected for SURGE fellowship to pursue undergraduate research in IIT Kanpur
- Simulated direct and reciprocal lattices using plane wave basis set representations of periodic functions in real and Fourier domains using VMD
- Worked on a parallel programming implementation of three dimensional Fast Fourier Transform using Message Passing Interface (MPI) libraries

PROJECTS

OPEN PROBLEMS IN DRONE COMMUNICATIONS | UG Project
Mentors: Prof Rohit Budhiraja and Ekant Sharma, EE — July 2018 – Present

- Working on open problems such as power scaling laws, energy and spectral efficiency analysis in massive MIMO based drone communication systems
- Investigated current work on geometric modeling and performance analysis in drone communications, spectral and energy efficiency in two-way relays

HEARTBEAT SENSOR | Electronics Circuit Laboratory Project
Mentor: Prof B. Mazhari, EE — February 2018 – May 2018
Report

- Detected and filtered cyclic vibrations in blood pressure using IR pair, transistors, capacitors, inductors, resistors to generate heartbeat signals
- Fed produced output to Arduino microcontroller interfaced with WiFi module
- Used MATLAB signal processing tools to display pulse rate, heartbeat patterns

AWARDS

2018	top 10% CPI	Academic Excellence Award
2017	top 10% CPI	Academic Excellence Award
2016	Mathematics Excellence	Prof JN Kapur Prize
2014	All India Rank 165	KVPY SA Scholarship Awardee
2014	National level	Indian National Chemistry Olympiad (InChO)

CO-CURRICULAR INVOLVEMENTS

2018	Chief Editor	Vox Populi, IIT Kanpur
2017	Core Team (Academics)	Counselling Service, IIT Kanpur
2016	Senior Executive	Techkriti, IIT Kanpur
2016	Senior Executive	Inter IIT Sports Meet
2016	UG Coordinator	Electrical Engineering Association (EEA)
2015	Voluntary Teacher	Sopan Ashram Shiksha Kendra School, Barasirohi