

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: 9.6 / 10.0

DON BOSCO SCHOOL

Grad. May 2015 | Howrah, India

Senior Secondary | ISC: 98.0%

Secondary | ICSE: 96.6%

STANDARD TESTS

GRE

AGGREGATE SCORE: 334/340

Verbal: 165/170 | Quant: 169/170

AWA: 5.0/6.0

TOEFL

AGGREGATE SCORE: 114/120

Listening: 30/30, Reading: 30/30

Speaking: 24/30, Writing: 30/30

COURSEWORK

* - Ongoing, ** - Audit

GRADUATE

5G Wireless Technologies**

Convex Optimization*

Analysis of 5G Wireless Networks*

Simulation-Based Design of 4G/5G

Wireless Standards*

Wireless Communications

MIMO Wireless Communications

Fibre-Optic Communications

UNDERGRADUATE

Communication Systems

Digital Signal Processing

Electromagnetic Theory

Optoelectronics**

Probability and Statistics

Data Structures and Algorithms

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 – November 2018

- 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
- Working on a theoretical model for energy scaling in UAV communications and corroborative simulation work in MATLAB on realistic drone distributions

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

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