Soumyadeep Datta

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EDUCATION

IIT KANPUR
B.Tech.+M.Tech. in Electrical Engineering
Expected May 2020 | Kanpur, India
UG CPI: 9.5/10.0
PG CPI: 10.0/10.0

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

STANDARD TESTS

GRE
Score: 334/340, AWA: 5.0/6.0

TOEFL
Aggregate Score: 114/120

COURSEWORK

* - Ongoing, ** - Audit

GRADUATE
Machine Learning for Signal Processing*
Simulation-Based Design of 4G/5G Wireless Standards
5G Wireless Technologies**
Convex Optimization
Analysis of 5G Wireless Networks
MIMO Wireless Communications
Wireless Communications

UNDERGRADUATE
Fibre-Optic Communications
Digital Signal Processing
Probability and Statistics
Data Structures and Algorithms
Electromagnetic Theory
Optoelectronics**

SKILLS

PROGRAMMING
Languages :
Proficient: C/C++ • Java
Basic: FORTRAN • Python
Software Utilities :
Proficient: MATLAB • LaTeX
Basic: MicroCap • Ubuntu terminal
Elementary: HTML/CSS • Arduino • RapidMiner • GNUPlot • VMD

RESEARCH EXPERIENCE

SMART TRANSPORTATION USING WIRELESS NETWORKS
University of California, San Diego (USA) — Abstract | Presentation
Mentor: Prof Xinyu Zhang, ECE — May – July 2019

- Set up a demo for the 5G forum showing end-to-end low-latency footage transmission from observer drone to UE (USRP in a car) over LTE using srsLTE, via ePC (Jetsun board for YOLO object detection) and eNB (USRP)
- Elementary realisation of handoff solutions on top of srsLTE, with a goal to realise intelligent machine-learning based handoff in mobility scenario

APPLICATION OF DELAY IN MIMO WITH ONE-BIT QUANTIZERS
New York University (USA) — End-Term Report | Repository
Mentor: Prof Elza Erkip, ECE — May – July 2018

- Extended MIMO models with one-bit quantization to incorporate unit delay at receiver, simulated capacity bounds to show marked capacity improvement

PROJECT

ANALYSIS OF SE IN MASSIVE MIMO UAV COMMUNICATIONS
Undergraduate Project, IIT Kanpur — Draft paper
Mentor: Prof Rohit Budhiraja, EE — July 2018 - March 2019

- Derived spectral efficiency bounds for power scaling in Massive MIMO UAV communication systems (perfect/imperfect CSI), validated via simulations

SELECT COURSE PROJECTS

TRAJECTORY OPTIMIZATION IN UAV COMMUNICATIONS
EE609A Term Project under Prof Ketan Rajawat, EE — Term paper

- Reviewed a paper each on capacity of UAV-enabled broadcast and multicast channel and implemented optimization algorithms

MMWAVE BLOCKAGE ANALYSIS VIA STOCHASTIC GEOMETRY
EE698O Term Project under Prof Abhishek Gupta, EE — Term paper

- Reviewed a paper deriving LoS and NLoS millimeter wave blockage model using stochastic geometry, reproduced simulation results

CELLULAR CONNECTED UAV
EE677A Term Project under Prof Rohit Budhiraja, EE — Term paper

- Reviewed a paper on UAV inter-cell interference coordination, power control

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

- Detected cyclic vibrations in blood pressure using IR pairs, used Arduino Nano microcontroller and MATLAB tools to display pulse rate, heartbeat patterns

AWARDS

2019	SN Bose Scholar	top 48 in India
2017-19	Academic Excellence Award (thrice)	top 10% CPI

POSITIONS OF RESPONSIBILITY

2018	Chief Editor	Vox Populi, IIT Kanpur
2017	Core Team (Academics)	Counselling Service, IIT Kanpur