

Ojas Kanhere

Education

- 2017– **PhD.**, *Electrical Engineering*, NYU Tandon School of Engineering, 3.95/4.00.
Recipient of the Weber Fellowship
- 2012–2017 **Bachelor and Master of Technology**, *Electrical Engineering*, IIT Bombay, 9.51/10.00.
Institute Silver Medalist
- 2012–2017 **Minor Degree**, *Mathematics*, IIT Bombay.

Research Work

- mmWave Indoor Positioning: Develop algorithms for accurate indoor positioning, by taking advantage of the wide bandwidths available at mmWave frequencies [1].
- mmWave Ray Tracing: Development of a 3D ray tracer, to accurately predict received signal characteristics such as received power, time of flight and angle of arrival. Accurate ray tracing enables cheap and quick mmWave channel experimentation, without the need to conduct real-world measurements [1]
- mmWave Channel Sounder Development and Channel Propagation measurements: Measurement and modeling of mmWave channel propagation characteristics and material interactions at 140 GHz [2]

Publications

- [1] O. Kanhere and T. S. Rappaport, "Position Locationing for Millimeter Wave Systems," in *Proc. IEEE GLOBECOM*, pp. 1–6, Dec. 2018.
- [2] Y. Xing, O. Kanhere, S. Ju, T. S. Rappaport, and G. R. MacCartney Jr, "Verification and calibration of antenna cross-polarization discrimination and penetration loss for millimeter wave communications," in *Proc. 2018 IEEE 88th Vehicular Technology Conference (VTC2018-Fall)*, pp. 1–6, Aug. 2018.

Master thesis

Design and Implementation of a Software Defined Network Based Wireless Controller

- supervisor Prof. Abhay Karandikar
- description Explored the benefits of bringing the software defined network (SDN) paradigm into wireless local area networks (WLANs). Quantitatively measured the gain attained in various network parameters such as throughput and wireless station setup time by bringing in the SDN paradigm, via ns-3 simulations. Implemented an SDN based WLAN controller on a Mikrotik board with OpenWrt.

Patents Filed

Abhay Karandikar, Pranav Kumar Jha, Akshatha Nayak M., Nishant Shah, Arghyadip Roy, Ojas Kanhere, Priyanka Pola, Abhishek Dandekar, Rohan Kharade, "Methods and Systems for Controlling a SDN based MultiRAT Communication Network", Patent filed, March 2017 (India), (201721008015) and April 2017 (USA) (15/582145).

Internships

May–July, **Engineering Intern**, *Qualcomm India*, Hyderabad.

2015 Competitive Performance Analysis: Benchmarked performance of a Qualcomm device against a competitor device on the basis of throughput and evaluated call drop/retention performance via scripts based on Android event programming

Teaching Experience

Autumn 2016 **Teaching Assistant**, *IIT Bombay*, Communication Systems (EE 308).

Spring 2016 **Teaching Assistant**, *IIT Bombay*, Digital Communications (EE 328).

Scholastic Achievements

Awarded the Ernst Weber Fellowship by NYU Tandon

Received the Institute Academic Prize at IIT Bombay for outstanding academic record in 2013, 2014 and 2015

Secured an **AP grade**, awarded for exceptional performance in the Digital Systems and VLSI CAD courses (AP is awarded for exceptional performance to a maximum of 2% students) at IIT Bombay

Among the top 1% students in the country in the Indian National Physics Olympiad, 2011

Select Course Projects

Spring 2016 **Acoustic Modem**

Guide Prof. Bhaskaran Raman, Computer Science and Engineering, IIT Bombay

Description Transmitted data using sound waves upto a distance of 2.5m. Used Hamming Code to correct single bit errors and make system robust to noise. Demodulated the signal by analyzing the spectrum of the received signal

Autumn 2016 **FSM state encoding using Partition Algebra**

Guide Prof. Sachin Patkar, Electrical Engineering, IIT Bombay

Description Prototyped an algorithm for serial decomposition of a finite state machine(FSM) in Python. By splitting the larger FSM into sub-FSM, the task of state encoding was made easier