Ashutosh Srivastava

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Education

2019-Present **Doctor of Philosophy (PhD)**, *New York University Tandon School of Engineering*, Brooklyn, NY.
Major : Electrical & Computer Engineering, Advisor - Prof. Shivendra Panwar, **CGPA : 4.0 (out of 4.0)**

2019 **Bachelor of Technology (B. Tech.)**, *Indian Institute of Technology (IIT Kanpur), Kanpur, India*.
Major : Electrical Engineering, **CGPA : 9.7 (Out of 10)**

2015 **High School**, *Dr. Virendra Swarup Education Centre, Kanpur, India*.
Indian School Certificate Examination, Class XII, Percentage : **93.6**%

Publications

July 2020 **Ashutosh Srivastava**, Fraida Fund, and Shivendra Panwar. "An experimental evaluation of low latency congestion control for mmwave links". *In Computer and Networking Experimental Research using Testbeds (INFOCOM 2020 WKSHPS CNERT 2020)*, Toronto, Canada, July 2020.

December 2020 **Ashutosh Srivastava**, Fraida Fund, and Shivendra Panwar. "A low latency congestion control that can compete". *To appear in the ACM CoNEXT Student Workshop.*2020.

Awards & Honors

July 2020 **Reproducibility** award for paper accepted at CNERT workshop at INFOCOM 2020

2019-present Recipient of the School of Engineering **Fellowship** at NYU Tandon School of Engineering

2018 Research & Study scholarship awarded by the **German Academic Exchange Service** (DAAD).

2017 Received Summer Undergraduate Research Excellence **Scholarship** (SURGE) at IIT Kanpur

2015-17 Received **Academic Excellence** Awards, awarded to top 7% students at IIT Kanpur

2015-19 Recipient of the **Merit cum Means (MCM)** scholarship at IIT Kanpur

2015 **99.9** percentile in the **Joint Entrance Examination** (IIT-JEE) among 1.25 million students.

2014 Awarded the **KVPY** (Kishore Vaiagyanik Protsahana Yojana) **Fellowship in Basic Sciences** by the Department of Science and Technology, Government of India.

Current Resesarch

Fall 2019-Present **Experimental evaluation & design of Low latency congestion control protocols**.
NYU Wireless Research Center | Advisors : Fraida Fund, Prof.Shivendra Panwar

- Setup a Cloudlab Testbed experiment to evaluate congestion control over mmWave wireless links.
- Experimented with TCP Cubic,L4S,BBR & PCC over a variety of mmWave blockage conditions.
- Our evaluation revealed potential problems associated with use of these congestion control protocols for low latency applications on networks with mmWave bottlenecks.
- Currently working on the design of an end-to-end scalable delay based congestion control algorithm.
- Participated in the **IETF 108 Hackathon** - developed a Cloudlab test suite which facilitates experimentation with the TCP Prague (L4S) linux kernel implementation.

Internships

Summer 2018 **NYU Tandon School of Engineering**, *Brooklyn,NY*, USA.
Wireless Virtual Reality using mmWave links | Mentor : Prof. Shivendra Panwar

- Matlab simulations to model the effect of user head movements on the feasibility of mmWave wireless VR.
- Made use of existing head movement datasets of real VR users watching a variety of 360° Youtube videos.
- Simulated directional beamforming at Tx and Rx to calculate suitable mmWave antenna design parameters.
- Antenna patterns of 60GHz WLAN routers were used to evaluate existing mmWave technology of the time.
- Participated in the ***4th Millimeter-Wave RCN Workshop,Brooklyn NY.***

Relevant Coursework

IIT Kanpur (EE/CS) Wireless Communication | MIMO Wireless Communication | Convex Optimization | Introduction to Machine Learning | Data Structures and Algorithms | 5G wireless technologies

NYU Probability & Stochastic Processes | Information Theory | Internet Architecture & Protocols | Network Security | Statistical Learning Theory

Ongoing **Deep Learning** @ NYU Center for Data Science

Undergraduate Projects

Fall 2018 **Indigenous 5G Testbed Project**, *Department of Telecommunications, Government of India*, Project Team Member at IIT Kanpur | Mentor: Prof. Rohit Budhiraja.

- Worked on interface design for 100 gigabit ethernet links used in the 5G base station hardware.
- Loopback simulation of Xilinx 100G ethernet IP Core in Vivado design software.
- Implemented verilog conversion of standard AXI interfaces to 100G ethernet IP user interface.
- Contributed in the design and review of baseband unit (BBU) & remote radio head (RRH) schematic.

Oct-Nov 2018 **Learning to Hash for similarity based Image retrieval**, *Course Project*, Machine Learning.

- Literature review of learning based image hashing techniques followed by tensorflow implementation and demonstration of a popular CNN based method using the CIFAR10 dataset.

Mar-April 2019 **Trajectory optimization in UAV communications**, *Term Paper*, Convex Optimization course.

- Reproduced results from literature on trajectory optimization for characterising capacity of UAV enabled two-user broadcast and multicast wireless channels.

Summer 2017 **Machine to Machine Communication over 4G LTE systems**, *Electrical Engineering, IIT Kanpur*. Undergraduate summer research program fellow | Mentor: Prof. Rohit Budhiraja

- Modified the PHY and MAC layer design of NI LTE application framework to meet M2M requirements.
- Implemented narrowband transmission for power efficiency, data and control channel repetition for coverage enhancement and simultaneous support of legacy LTE devices.
- Real-time execution and testing using National Instruments' Software Defined Radios.

Technical Skills

Programming C, Python, Linux Kernel

Software Matlab (CVX), PyTorch, Github, LaTeX, Xilinx Vivado, NI Labview

Systems GENI testbed, CloudLab testbed, NI USRP

Teaching / Mentoring

Fall 2020 **Teaching Assistant**, *Internet Architecture and Protocols Lab*, ECE 5373, NYU Tandon.

Summer 2020 **Mentor**, *ARISE High school summer research program*, NYU Tandon School of Engineering.

- Mentored two high school students on projects related to congestion control and anonymous web browsing.

International Exposure

10-25 May 2019 **Huawei - Seeds for the Future**, Huawei Headquarters, Shenzen, China.

- All expenses paid cultural and technical training program for selected undergraduate students.
- Completed a short course in Mandarin & Chinese art at the Beijing Language and Cultural University.
- Hands-on training with 4G/5G hardware and guided tours of R&D activities at the Huawei headquarters.

Research Affiliations and Experience

2018-19 Wireless Systems Design Lab, IIT Kanpur

2019-present Center for Advanced Technology in Telecommunications (CATT),Brooklyn NY

2019-present NYU WIRELESS Research Center, Brooklyn NY

TEST SCORES

GRE Verbal- **164/170** , Quantitative - **170/170** , AWA - **4.0/6.0**

TOEFL Reading-**30/30**, Listening-**30/30** , Speaking-**27/30** , Writing-**30/30** , TOTAL - **117/120**