Rahul Bothra

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Research Interests

Networks and Systems.

Education

Birla Institute of Technology and Science, Pilani
B.E. (Hons.) in Computer Science (2016 - 2019)

Experience

Research Fellow, Microsoft Research Oct '20 - Present
Advisor: Ramachandran Ramjee
- Designing efficient network protocols for distributed model training in data centers.

Software Engineer, Microsoft R&D Dec '19 - Oct '20
- Worked on Azure Migrate to devise a communication protocol to scale out migration nodes on customers' datacenter
- Added robustness and failovers to data communication from customers' datacenter to Azure

Engineer, Hyperloop India Aug '16 - Jul '17
- Built an efficient halbach array design for levitating the Hyperloop pod with Neodymium magnets
- Among 24 finalists in SpaceX Global Challenge

Research Projects

P4-TrafficTool 2020
Advisor: Prof. Ben Leong
- TrafficTool generates 'plugin code' for tools like Scapy, MoonGen for packet generation and parsing of headers specified in P4

Adding community wireless routing protocols in NS-3 (paused) 2020
Advisor: Tom Henderson, Mohit Tahiliani
- Adding support for routing protocols like BATMAN in NS-3 to allow real world simulations for performance analysis

Heuristic solutions for Clustered Orienteering Problem 2019
Advisor: Prof. Abhishek Mishra
- Developed heuristics for Clustered Orienteering Problem with Genetic Algorithm and Swarm Optimization techniques.
- Improved peformance by 8% and accuracy by 5% than state-of-the-art

Reducing image distortion via Object Aware Seam Carving 2018
Advisor: Prof. Pramod Tanwar
- Identified conditions which created large distortion of certain objects in a seam-carved image.
- Added neighborhood pixel weighing of seams to reduce this effect.

Teaching Positions

Teaching Assistant, BITS Pilani 2018 - 2019
Professors: Shan B., Sundaresan R. et. al.
Courses: Logic in Computer Science (CS F211), and Programming (CS F111)

Mentor, Google Open Source Programs 2018 - 2020
Mentoring high-school and university students in open source programs like Google Summer of Code and Google Code In

Academic Honors

KYPY Fellowship by Dept. of Science and Techonology, Govt of India
NTSE Scholarship by NCERT Council, Govt of India