# RAHUL BOTHRA

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## OBJECTIVE

I am seeking a research position in the field of Networks and Systems. I have developed an interest and background in the field via relevant coursework and projects.

## EDUCATION

**Birla Institute of Technology and Science, Pilani - Pilani Campus**   *Aug '16 - Dec '19*
*Bachelor of Engineering (Hons.) Computer Science,* GPA : 8.09 / 10
**St. Anselm's School, Jaipur**   *Aug '14 - May '16*
*CBSE 2016,* Overall: 94.8%
**St. Anselm's School, Jaipur**   *Aug '12 - May '14*
*CBSE 2014,* Overall: 10 GPA

## RELEVANT COURSEWORK

Adv. Computer Networks - **SDN and P4** (ongoing), Computer Networks, Operating Systems, Database Management, Data Structures and Algorithms, Logic in Computer Science, Theory of Computation

## PROJECTS

**Community Wireless Routing models in NS-3**   *Jun '20 - Present*
*Under Tom Henderson*
· Identifying mesh routing protocols used primarily in community wireless networks (like bat-adv for L2).
· Establishing these protocols in NS-3 and developing models matching real world scale systems for performance analysis and comparative studies.

**Heuristic Solutions for Clustered Orienteering Problem**   *Aug '19 - Dec '19*
*Under Prof. Abhishek Mishra*
· Investigated efficient heuristic solutions for Clustered Orienteering Problem (Clu-OP) from known heuristic path finding algorithms like Tabu Search, GA, and Swarm Optimization.
· Developed novel solutions using GA and PSO and compared their performances with existing benchmarks for Clu-OP and time-vehicle variants. GA solution was efficient than existing and experimented solutions.

**Cross Version Python Support for Sugar**   *Apr '18 - July '18*
*Under Walter Bender - Founder MIT Media Lab*
· Implemented cross version Python support for Sugar OS, dependant UX frameworks and networking architecture, motivated by the deprecation of Python 2.
· Enable package consistency across OS distributions (Debian, Fedora) and Python versions (2.3 to 3.7).
· Migrated dbus and Telepathy based networking interface to its PyGObject binding.

**Reducing Image Distortion via Object Aware Seam Carving**   *Aug '18 - Dec '18*
*Under Sc. Pramod Tanwar - CEERI Pilani*
· Identified conditions where seam carving lead to heavy distortion of certain objects in images.
· Modified the seam finding algorithm to add weighing based on past removed seams to minimize this.

**BOB - Bot of BITS**   *Jan '18 - Mar '18*
· Developed a cloud server chatbot that used trie based indexing to answer common queries of students through Facebook Messenger platform.
· Processed 500+ users and 20,000 messages in the first 10 hours of launch.

## WORK EXPERIENCE

### Microsoft IDC, Hyderabad
Dec '19 - Present

*Software Engineer, Azure Migrate, Mentor: Priyank Gaharwar, Senior Engineer*

· Building on-premise tools to discover and assess large scale server infrastructure for migration to Azure.
· Developed resilient proxy handling setups and supporting discovery of Linux and Windows VMs over VMware, HyperV, and Physical servers.
· Building distributed discovery mechanism for efficient scale-out and failover mechanisms.

### Microsoft IDC, Hyderabad
May '19 - July '19

*Engineering Intern, Azure Monitoring, Mentor: Ravi Shivaprakash, Senior Engineer*

· Developed Azure Monitor Support Bot to resolve user queries by providing log monitoring insights.
· Deployed over NodeJS and Typescript implementing the Azure Bot Framework. Implemented RBAC checks and async message handling.

### Hyperloop India
Sep '16 - July '17

*Levitation Engineer, Mentor: Kshitij Khandelwal, Founder Pixxel*

· Designed an efficient magnetic levitation assembly for the pod to optimize the lift to drag ratio, based on COSMOS simulations of the Halbach Array design.
· Amongst 24 world finalist teams competing in the SpaceX Global Challenge.

## TEACHING AND MENTORSHIP EXPERIENCE

### Mentor - Google Open Source Programs
*With Sugar Labs*
*Oct '19 - Present*

· Mentoring college students for summer projects with GSoC - defining project goals, reviewing code, and identifying best solutions, while introducing students to open source working style.
· Mentoring high-school students in GCI, creating byte sized tasks to hone their coding and design skills.

### Teaching Assistant - BITS Pilani
*Supervised by Prof. Shan B., Prof. Rajesh Kumar and others*
*Aug '17 - Dec '19*

· Taught 300+ students as TA in Logic in Computer Science (CS F211) and Computer Programming (CS F111) over 5 semesters.
· Designed tutorial questions, conducted weekly classes, designed and evaluated semester projects and lab components for the courses.

### Lecturer - Data Science with Python
*Supervised by Prof. Yashwardhan Sharma*
*Jan '19 - May '19*

· Introduced and led an audit course "Data Science with Python", as course incharge and co-lecturer.
· Designed course content, evaluative components and projects, and graded students.

### Programming SIG Head
Aug '17 - Dec '18

*Association for Computing Machinery (ACM) - BITS Pilani chapter*

· Closely mentored 30+ chapter members, conducting lectures and events for a range of C.S. topics.

## ACADEMIC ACHIEVEMENTS

· Recipient of KVPY fellowship 2015 by Dept. of Science and Technology, Govt. of India
· Recipient of NTSE scholarship 2014 by NCERT Council, Govt. of India
· Recipient of CBSE merit award for top 0.1% of 1.3 million candidates in AISSE 2016