

# Rut Vora

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## Education

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### University of British Columbia, Vancouver

Sep 2022- Present

MASTER OF SCIENCE IN COMPUTER SCIENCE (ONGOING)

- Research Assistant at **Systopia Lab** advised by **Prof. Aastha Mehta**
  - Currently researching on solutions to mitigate Network Side-channel attacks

### Birla Institute of Technology and Science, Pilani (BITS-Pilani)

Aug 2016 - Sep 2020

BACHELOR OF ENGINEERING IN COMPUTER SCIENCE

## Skills and Interests

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- Computer Networks
- Distributed and Cloud Computing
- Operating Systems (Linux)
- Internet of Things
- DPDK
- SmartNICs and DPUs
- System Security

## Publications

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### 1) Provisioning of Broadband Communication for Passengers in Hyperloop using 5G Networks

Udaipur, India

RUT VORA, R. M. KARTHIK, M. SARAVANAN | EDITION 1, PP:317-329 | [VIEW HERE](#)

Dec 2019

- [ICT for Competitive Strategies 2019](#).

## Experience

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### F5 Networks Innovation Pvt Ltd

Hyderabad, India

SOFTWARE ENGINEER | OFFICE OF THE CTO

Sep 2020 - Aug 2022

- Explored using **WebAssembly (WASM)** and **WebAssembly System Interface (WASI)** to develop modules that are reusable across the product range
- Developed a system to ease the deployment of custom service proxy and firewall containers on **SmartNICs** and **Data Processing Units (DPUs)**
- Developed a Proof-of-concept SHIM library that enhances an application's capacity to process small TCP packets by leveraging **F-stack**, a user-space TCP/IP stack ported from FreeBSD to run atop **DPDK**
  - It is an LD\_PRELOAD-able library that communicates with another service running F-stack using shared memory.
- Created a solution to inject proprietary information inside **SRv6** headers using **P4**
- Used **eBPF** for detecting and blocking system calls, especially in a Platform-as-a-service environment (W.I.P when I left)

### Ericsson

Chennai, India

RESEARCH INTERN

Jul 2019 - Dec 2019

- Proposed architecture for implementing 5G in Home Automation, AR/VR, etc.
- Proposed a solution to mitigate problems that arise in providing 5G to high speed transportation like Hyperloop, which led to a publication (See Publication #1)

## Competitions

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### Conduent Blockchain Hackathon

Hyderabad, India

FINALIST (TEAM)

Jun 2019

- Developed a proof-of-concept blockchain based solution to incentivise training of a neural network model on local devices
- Combined the trained models using the federated learning algorithm

### Smart India Hackathon

Ahmedabad, India

TEAM LEADER | FIRST RUNNER UP (TEAM)

Mar 2019

- Worked on solving the problem statement of **Indian Space Research Organisation** to utilise a 220-bit space available in the transmissions of the **Indian Regional Navigation Satellite System (IRNSS)**
- Created a solution to transmit 10 safe locations with 100m<sup>2</sup> accuracy during a natural disaster
- Created a simulation to show the transmission of the emergency broadcast to the devices in the affected area

## Projects

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### Adaptive Video Streaming

Hyderabad, India

INDEPENDENT PROJECT

Apr 2019 - May 2019

- Developed a solution to dynamically control spacial and temporal compression and rate factors for live video streams

### IoT Firmware Verification using Smart Contracts

Hyderabad, India

ADVISED BY **DR. GEETHAKUMARI**

Mar 2019 - Apr 2019

- Developed a proof of concept on Ethereum for verifying the firmware integrity of an IoT device using a consensus based system, during the boot up process

### Utilising Bluetooth/WiFi Direct to communicate Safety status and Location in a Natural Disaster

Hyderabad, India

MICROSOFT HACKATHON

Oct 2018 - Nov 2018

- Targeted towards Natural Disasters where Telecommunication services are unavailable
- Developed an application to automatically transmit and propagate user's location and safety status using Bluetooth and WifiDirect Service Discovery
- Suggested obtaining user's health data from smart wearable, if possible
- Proposed creation of a designated application for rescue workers to detect these transmissions

### Playback Sync

Hyderabad, India

INDEPENDENT PROJECT

Jun 2018 - Jul 2018

- Developed a tool to sync playback across multiple VLC instances running anywhere in the world, using MQTT and VLC's Telnet interface

## Extracurricular Activity

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### Hyperloop Pod Challenge (SpaceX)

Remote

MEMBER OF ON-BOARD COMPUTING TEAM

Jun 2019 - Nov 2019

- Designed a solution to collect sensor data, calculate necessary corrections and send control signals to execute the corrections
- Introduced fail-safe mechanisms for each component
- *Note: SpaceX did not organise a challenge that year. Hence the team decided to abandon after the first draft.*

## Scholarships

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Term 1-3 **International Tuition Award**, University of British Columbia

Vancouver, Canada

## Volunteer Work

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Feb 2020 **Mentor**, On-campus Student Mentorship Program

Hyderabad, India

Jun 2019 **Tutor**, 15-day Workshop on Android app development and basics of IoT

Hyderabad, India

May 2019 **Tutor**, 15-day Workshop on Android app development and basics of IoT

Vizag, India

Jun 2016 **Tutor**, Taught 9th and 10th grade students in school

Rajkot, India