

Rut Vora

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Skills and Interests

- System and Network Security
- Linux
- CXL
- Distributed Systems
- eBPF/XDP
- Docker
- P4
- Network acceleration (DPDK)
- C/C++
- WebAssembly
- Golang
- Git

Education

University of British Columbia, Vancouver

Sep 2022 - Present

M.S. COMPUTER SCIENCE (THESIS) | ADVISED BY **DR. AASTHA MEHTA**

- (Thesis) **Mitigating Network Side-channel Attacks: From the Internet to Interconnects**
- Received International Tuition Award (ITA) from the university

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

Aug 2016 - Sep 2020

B.E. COMPUTER SCIENCE

Graduate Coursework

- Systems Security
- Automated Testing
- Human Computer Interaction - AR/VR
- Graduate Operating Systems
- Real-time Distributed Systems
- Data Management

Experience

The University of British Columbia

Vancouver, Canada

GRADUATE RESEARCH ASSISTANT | SYSTOPIA LAB @ UBC CS

Sep 2022 - Present

NetShaper:

- Developed a portable solution to mitigate network side-channel attacks using differential privacy
- Customisable trade-off between privacy, bandwidth overhead, and latency overhead

Side Channels in CXL Memory Pooling Solutions:

- Exploring side-channel exploits possible due to resource contention at CXL controllers in CXL memory pooling solutions
- Currently emulating the behaviour of CXL.mem on PCIe

F5 Networks Innovation Pvt Ltd

Hyderabad, India

SOFTWARE ENGINEER II | OFFICE OF THE CTO

Sep 2020 - Aug 2022

- Explored using WebAssembly to provide in-process isolation to imported (untrusted) modules
- Developed a solution to offload an F5 DDoS protection solution to **Mellanox SmartNICs**
- Enabled unmodified applications to leverage DPDK instead of the Linux kernel networking stack
- Developed a solution to inject proprietary information inside **SRv6** headers using **P4**
- Leveraged eBPF to detect and prevent privilege escalation attempts in a PaaS environment

Ericsson

Chennai, India

RESEARCH INTERN

Jul 2019 - Dec 2019

- Developed a solution using 5G mmWave and leaky-wave antennas to eliminate the Doppler effect in mobile networks caused by high-speed transportation like Hyperloop
- Proposed methods to use network slicing for enhancing 5G network utilisation per application

Publications

NetShaper: A Differentially-Private Network Side Channel Mitigation System

USENIX Security

AMIR SABZI, **RUT VORA**, SWATI GOSWAMI, MATHIAS LECUYER, MARGO SELTZER, AASTHA MEHTA | [LINK](#)

Aug 2024

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

ICT for Competitive Strategies

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

Dec 2019

Competitions

Smart India Hackathon

Ahmedabad, India

TEAM LEADER | FIRST RUNNER UP (TEAM)

- Transmitting disaster relief information via Indian navigation satellites (**IRNSS**)
- Transmitting 10 safe locations with 100m² accuracy during a natural disaster in a 220-bit space
- Simulation to show the transmission of the emergency broadcast to the devices in the affected area

Microsoft Hackathon

Hyderabad, India

FALLBACK P2P NETWORK FOR CRITICAL COMMUNICATION DURING INFRASTRUCTURE COLLAPSE

- 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
- Created a designated application for rescue workers to locate users using these transmissions

Conduent Blockchain Hackathon

Hyderabad, India

FINALIST (TEAM)

- 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