

Dhruv Rauthan

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Research Interests

Software Defined Networking, Network Security

Education

Birla Institute of Technology and Science, Pilani Aug. 2019 – June 2023
Bachelor of Engineering in Computer Science 8.81 CGPA

Army Public School, Dhaula Kuan May 2017 – May 2019
Science with Maths and Computer Science 95.4%

Research Experience

SiegeBreaker2 | *Prof. S. Chakravarty* ↗, *Prof. V. Naik* ↗ Feb. 2022 – Present

- Designed improvements over an existing SDN decoy routing system which included setting up a SmartNIC on a CDN edge server, utilising the new Encrypted ClientHello and using Docker instances to relay requests between the user and a blocked website
- Developed a custom proxy with stunnel to encrypt and encapsulate TCP segments

Covert Channels in SD-WANs (Thesis) | *Prof. S. Schmid* ↗ Aug. 2022 – Jan. 2023

- Worked as a research intern at Technische Universität Berlin
- Set up an open-source SD-WAN and exploited timing differences in branch authentications and tunnel reconfigurations to exchange covert information between hosts in separate LANs

Sugamyata | *Prof. S. Joshi* ↗ Jan. 2022 – May 2023

- This project aims to contribute to the work of accessibility education in India
- Involved in preparation of academic and industry surveys to gauge the importance given by professionals to accessibility related topics
- Analyzed data taken from a software engineering course to understand the impact of accessibility education on students

Evaluation of Cloud Storage on Edge | *Prof. A. Trivedi* ↗, *Prof. V. Naik* ↗ Jan. 2022 – Nov. 2022

- Deployed a Cassandra node cluster in a collection of virtual machines using an open-source framework
- Analyzed the effect of changing latency between network links during read/write operations to the database while also varying Cassandra's replication factor and consistency level

Offline Payment Protocol | *Prof. V. Naik* ↗ Aug. 2021 – Jan. 2022

- Developed software which enables point-to-point monetary (CBDC) transactions with the use of authorised hardware (TEE) in mobile devices
- Implemented the Registration and Transaction protocols in the Offline Payment System "untrusted" framework through an Android application
- The purpose of the app was to provide an offline payment functionality which allowed users to make transactions even in the absence of the internet, by connecting to a local hotspot

Privacy in SDN based Networks | *Prof. V. Naik* ↗ Jan. 2021 – May 2021

- Understood the recent advancements in network security and analyzed the different approaches towards censorship circumventions
- Built software using Apache2 and OpenSSL to circumvent censorship agencies' firewalls by using ESNI and the concept of domain hiding
- Set up a proxy website on an Apache2 server used to relay requests between the user and a blacklisted domain

Professional Experience

Software Intern

NVIDIA [↗](#)

May 2022 – July 2022

Pune, India

- Part of the CUDA Profiling Tools Interface (CUPTI) software team
- Analyzed CUPTI performance, helped identify and improve areas of overhead for each activity separately by removing redundant code
- Configured scripts to initiate Docker containers for efficient CUPTI overhead testing

Summer Intern

Village Book Builders [↗](#)

June 2021 – July 2021

USA

- Customized open-source and proprietary software including a Google Meet bot to record meetings automatically
- Discovered ways to remotely manage hundreds of computers using SSH and Powershell
- Leveraged 3rd party APIs such as Microsoft Azure for live speech translation to bridge language barriers

Android Developer

Indiahaat [↗](#)

Apr. 2020 – Aug. 2020

Delhi, India

- Created the alpha build of the Android app for a startup which helps retailers get wider access to customers in their area
- Worked with Android development tools including Kotlin, Retrofit2, MVVM architecture, Google Maps APIs and databases using Room
- The app allowed customers to place orders from local convenience stores near them at lower prices

Teaching Experience

First Degree Teaching Assistant

CS F364 Design and Analysis of Algorithms

Jan. 2023 – May 2023

First Degree Course Mentor

CS F314 Software Development for Portable Devices

Sep. 2022 – Dec. 2022

Volunteer Experience

Project Lamani | *Teacher*

Took part in an initiative of Abhigyaan, a volunteer organization, and taught under-privileged primary school children in slums

Technical Skills

Languages: Java, C/C++, Python

Networking: Mininet, OpenFlow, OpenvSwitch, OpenSSL, Apache2 Server, OpenVPN, stunnel

Developer Tools: Git, Docker, Android Studio, VS Code, Apache Cassandra, GNS3

Publications

P. Loganathan*, **D. Rauthan***, A. Trivedi and V. Naik, "Performance Measurement of Distributed Storage on Edge Devices," 2023 15th International Conference on COMMunication Systems & NETworkS (COMSNETS), Bangalore, India, 2023, pp. 841-846, doi: 10.1109/COMSNETS56262.2023.10041319 (* Equal contribution)

Awards

Research Scholarship Assistance | *Alumni Relations Cell* [↗](#)

2023

One of the three awardees of the scholarship for publishing an excellent research paper in a journal/conference. The applicants go through 2 rounds of screening to select the final awardees.