

# Vaibhav Sharan

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## Education

### Arizona State University

Master of Science in Computer Science

May 2025

Tempe, Arizona

- Graduate Teaching Assistant: CSE 534: Advanced Computer Networks

### Netaji Subhas University of Technology

Bachelor of Engineering in Computer Engineering

2017 - 2021

New Delhi, India

## Experience

### Centre for Development of Telematics

Research Engineer

Sept 2021 – July 2023

New Delhi, India

- Initiated and led the R&D for a multi-threaded HLR application architecture featuring a message queue, conducted load testing, and leveraged Docker scaling to improve performance by over 20x for 5 million subscribers in 2G/3G core solutions.
- Developed and documented UDM, AUSF, and UDR Network Functions prototypes for the BSNL 5G project leveraging Open5GS and implementing 9+ interface messages following 3GPP specifications.
- Built 4G node HSS and 3G node HLR for BSNL and TCS in the Indigenous 4G Project, backed by the Government of India which has been deployed in over 400 regions in India.
- Achieved National Centre for Communication Security certification for HSS by deep inspection and modification of over 100k LOC to fulfill security assurance requirements for relevant national and international standards.
- Researched, developed, and documented software requirements for DevOps tools, applications, product prototypes, and systems for telecom solutions paving way for commercial deployment.

### NatureDots

Innovative Systems Engineer

Jan 2020 – Aug 2020

New Delhi, India

- Designed, developed, and deployed a predictive information system on AWS to build sustainable efficient fisheries, enhancing ecological and water resource quality powered by machine learning models for data analysis.
- Created backend (Django), database (MongoDB), and a management dashboard. Set up REST APIs on ThingsSpeak and UbiDots for IoT devices and other sensors.
- Performed a key role in designing the architecture of project, and contributed to presentations for Innovation and Start-Up Funding events obtaining over \$100,000 in grants.

### Bharat Electronics Limited

Summer Intern

May 2019 – July 2019

Ghaziabad, India

- R&D of a Remote Desktop Sharing and Access application to be deployed on Indian Naval ships (Python & UNIX).
- Developed a Real-time Radar Information Visualization and Analysis software incorporating Data science models.
- Created and tested prototypes for the Software Development team for Radar Data Collection in Indian Navy ships.

## Projects

### Illustrations using Generative Adversarial Nets

- Utilized GAN and CNN techniques to automate the generation of facial images.
- Trained DCGAN models on specialized animated facial image datasets. Enabled automatic creation of animated character faces based on input facial feature tags.

### Image Super Resolution using CNN

- Devised and implemented a deep learning model employing Convolutional Neural Networks (CNN) to upscale image resolution. Employed a range of optimization techniques and built a model using TensorFlow.

### CAPTCHA Recognition and Solving using CNN

- Implemented Convolutional Neural Networks for recognition and resolution of Captcha images utilizing TensorFlow and OpenCV.

## Technical Skills

**Languages:** C, C++, Python, Java, Golang

**Computer Networks:** 5G/4G/3G/2G Core, TCP/IP Stack, SS7 Protocol, Socket Programming, Protobuf

**AI/ML:** Generative AI, Diffusion and Transformers, GANs, TensorFlow, PyTorch

**Databases:** MySQL, MongoDB, Redis, Hazelcast, eXtremeDB

**Tools & Technologies:** Dockers, Kubernetes, AWS, Valgrind, GDB, Git, Jira