

Hemendu Roy

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EDUCATION

Candidate for Master of Science in Computer Science

Expected May 2023

Arizona State University, Tempe, AZ

3.89 GPA

Software Security, Mobile Computing, Cloud Computing, Advanced Network Security, Distributed Database Systems

Bachelor of Engineering in Electronics & Communication

2015 – 2019

R.V College of Engineering, India

3.84 GPA

Applied Mathematics, Advanced Data Structures, Java, Computer Communication Networks

EXPERIENCE

SEFCOM Laboratory at ASU, United States: 5G Cybersecurity Research Assistant

10/2021 - Present

Integrating Open Source 5G implementations such as free5gmano, free5gc and UERANSIM together and subsequently scanning for security vulnerabilities.

HPE Aruba, India: Software Engineer

09/2019 - 05/2021

- Aided in the development, scale-testing and deployment of real-time predictive Network Insights by consuming live telemetry data from 1M+ Access Points using Scala, Java, Oozie, Hadoop, Kafka.
- Analyzed patterns in telemetry data using PySpark and Jupyter to develop new features for the NetInsight product
- Developed scripts for Test Automation and Application Deployment using Jenkins and Ansible.
- Reduced AWS network costs by over \$1 million by reducing inter Availability Zone network transactions
- Recognized with **three “Aruba Recognition Awards”** for outstanding performance

HPE Aruba, India: Cloud Engineer Intern

01/2019 - 08/2019

Implemented a Hadoop NameNode High Availability Architecture to ensure seamless failover of several Machine Learning applications scheduled in YARN and Oozie.

PROJECTS

Hand Gesture Recognition | [CODE](#)

Fall 2021

- Trained and developed a Convolutional Neural Network model to classify Hand Gestures
- Developed a mobile app using Android API 28 and Java
- Sent recorded gesture videos to a Flask web server in the cloud
- Used cosine similarity to perform gesture recognition and push the result back to the Android app

BrainNet | [CODE](#) | [REPORT](#)

Fall 2021

- Demonstrated liveness detection of brain signals and compared performance parameters
- Developed a mobile app using Android API 28 and Java
- Sent the data to a Flask web server for processing
- Performed Feature Extraction using variants of DWT and Fourier Transforms
- Processed the data using Machine Learning methods such as Support Vector Machines, Random Forest, Clustering and Multi-Layer Perceptron Classifiers

Scalable Facial Recognition System

Spring 2022

Developed a multi-tiered Facial recognition system

- Developed the model using Pytorch, keras, Tensorflow
- Used a Raspberry Pi to record footage. Face Detection frequency – twice per second.
- Used Flask and Gunicorn to create a web server
- Implemented the backend in 2 flavors, EC2 with autoscaling and AWS Lambda with Docker images in ECR.
- Used Amazon S3 and DynamoDB to store data and Amazon SQS to relay messages

OPEN -SOURCE CONTRIBUTIONS

[Apache Sedona](#) – Implemented Flink API and SQL PostGIS spatial geometry functions in Scala, Python and Java

[triangles](#) – A python module that calculates triangle attributes using the Law of cosines and the Law of sines

TECHNICAL SKILLS

Languages: Java, Python, C/C++, Bash, Scala, Javascript, HTML, CSS, MATLAB

Other Technologies: Azure, Google Cloud, Kubernetes, Cassandra, MongoDB, PostgreSQL, Airflow, Datadog, Grafana, VMWare, KVM, numpy, pandas, scikit-learn, Git, Simulink

AWARDS

The Math Company Hackathon Winner (2018)