Hemendu Roy

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EXPERIENCE

Axon · **Scottsdale, AZ**

Software Engineer II 01/2025 – Present

- Full-stack engineer building AI Search across video, audio, text, images and more.
- Search covers over 3B pieces of evidence, with 4M added each day.
- Re-architected the search indexing pipeline, saving $2M a year in cloud costs as a one-person team.

Software Engineer 06/2023 – 12/2024

- Built full-stack features for the Axon Evidence platform, a cloud system law enforcement uses to store, manage, investigate and share digital evidence, using TypeScript React, Scala, Python and MS SQL.
- Rated a top performer.

Software Engineer Intern 05/2022 – 08/2022

- Axon Air team: software for public-safety drones. Web in TypeScript React, mobile in Kotlin and Swift, backend in Go and C.

SEFCOM Laboratory, Arizona State University · **5G Cybersecurity Research Assistant** 10/2021 – 05/2022

- Integrated open source 5G stacks (free5gmano, free5gc, UERANSIM) and scanned them for security vulnerabilities.

HPE Aruba · **Bangalore, India**

Software Engineer 09/2019 – 07/2021

- Built, scale-tested and deployed real-time predictive Network Insights from live telemetry of 1M+ access points using Scala, Java, Oozie, Hadoop and Kafka.
- Analyzed telemetry patterns with PySpark and Jupyter to develop new NetInsight features.
- Wrote test automation and deployment scripts using Jenkins and Ansible.
- Cut AWS network costs by over $1 million by reducing inter-Availability Zone traffic.
- Won three Aruba Recognition Awards for outstanding performance.

Cloud Engineer Intern 01/2019 – 08/2019

- Implemented Hadoop NameNode High Availability so machine learning applications in YARN and Oozie fail over without interruption.

OPEN SOURCE

- **Apache Sedona:** implemented Flink API and SQL PostGIS spatial geometry functions in Scala, Python and Java, including ST_PointOnSurface.
- **triangles:** Python module that calculates triangle attributes with the laws of cosines and sines.
- **Milvus:** improved the modulo and bitwise filter errors to name the field and data type that caused them.

PROJECTS

Scalable Facial Recognition System Spring 2022

- Multi-tier face recognition built twice on AWS: EC2 with autoscaling, and Lambda with Docker images in ECR.
- Models in PyTorch, Keras and TensorFlow; Raspberry Pi capture twice per second; Flask and Gunicorn server; S3, DynamoDB and SQS for data and messaging.

BrainNet Fall 2021

- Android app and Flask server that detect liveness of brain signals using DWT and Fourier feature extraction, then SVM, random forest, clustering and MLP classifiers.

Hand Gesture Recognition Fall 2021

- Trained a CNN to classify hand gestures. Android app sends video to a cloud Flask server, which matches gestures with cosine similarity and returns the result.

EDUCATION

M.S. Computer Science · **Arizona State University, Tempe, AZ** 2023 · GPA 3.94

B.E. Electronics & Communication · **R.V. College of Engineering, India** 2015 – 2019 · GPA 3.84

TECHNICAL SKILLS

Languages: Java, Python, Scala, Go, C, C++, JavaScript, TypeScript, React, Kotlin, Swift, Bash, HTML, CSS, MATLAB

Technologies: AWS, Azure, Google Cloud, Kubernetes, Docker, PostgreSQL, MS SQL, Cassandra, MongoDB, Kafka, Spark, Airflow, Datadog, Grafana, Git, numpy, pandas, scikit-learn

AI: Claude, ChatGPT, Cursor, agentic AI