

# Soham Nag

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## EDUCATION

### Master of Science in Computer Science

Arizona State University, Tempe, AZ

GPA : 4.0

August 2022 – May 2024

### Bachelor of Technology in Electrical and Electronics Engineering

National Institute of Technology Meghalaya, Shillong, India

GPA : 8.6

August 2013 – May 2017

## TECHNICAL SKILLS

**Languages:** Java, Python, C, C++, Objective-C, JavaScript, TypeScript, HTML, CSS, SQL, NoSQL, NewSQL, Kotlin  
**Libraries and Misc.:** Spring Boot, Next.js, React.js, Node.js, Express.js, Django, Redux, Zustand, AWS (EC2, S3, Lambda, DynamoDB), Google Cloud (GCP), Microsoft Azure, GraphQL, PostgreSQL, MySQL, MongoDB, Redis, C#, Kibana, Elasticsearch, Git, Github, NPM, Yarn, Docker, Kubernetes, Ansible, Terraform, Firebase, Supabase, Apache Kafka, Mockito, JUnit, Selenium, Postman, Jenkins, Agile, SDLC, CI/CD, Gradle, Maven, Linux, Data Structures and Algorithms, Object Oriented Programming, Event Driven Architecture and Software Design Patterns, Jira, GitLab

## RELEVANT TECH EXPERIENCE

### Graduate Research Assistant & Teaching Assistant

Arizona State University

Aug 2022 – May 2024

Tempe, AZ

- Collaborated in the development of a Generative Adversarial Network based privacy preserving counterfeit identity document detection system and generated its corresponding benchmark dataset for a **Department of Homeland Security** funded research project of CACTUS Lab, ASU
- Performed an in-depth comparison of the performance of PostgresML (an in-database machine learning inference framework) against Sklearn, ONNX, Hummingbird, Treelite. **Published the results in a paper in ACM SOCC'23**
- Teaching Assistant for 'Database Management', 'Data Intensive Systems for Machine Learning', 'Principles of Programming Languages', 'Engineering Blockchain Applications' and 'Distributed Software Development'

## OTHER EXPERIENCE

### Operations and Maintenance Engineer

Power Grid Corporation of India Limited

July 2017 – July 2021

Shillong, India

- Collaborated with ABB Sweden for the commissioning of **Asia's first 800 kV 3000 Megawatt** high performance HVDC transmission facility in Assam (India) and **led an execution team of 5 employees**. The project improved the region's power reliability by over **20%**
- Undertook routine testing and troubleshooting of company's internal IT network and network devices, **reducing network vulnerabilities and network downtime by 4%**

## PROJECTS

### Thesis Project: GAN based counterfeit identity document detection | *OpenCV2, Pillow, Pytorch*

- Developed a benchmark identity document dataset containing 4 types of fraud patterns. The entire dataset consists of **600k images** and is about **60x times** bigger than the similar existing dataset

### Spotify Clone Application | *Next 13, React, Supabase, PostgreSQL, Zustand, Tailwind, Stripe API, Vercel*

- Implemented **user registration, authentication**, song and album art upload, liked/disliked songs and music playback functionalities in a polished UI. Leveraged the efficiency of Supabase and Zustand for authentication and state management. Integrated Stripe API for **secure monthly subscription payments**.

### Trivia Application | *Java, Spring Boot, PostgreSQL, Postman*

- Developed a trivia application containing **separate microservices** for CRUD operations on a question bank and generating a quiz for user. Question bank stored using PostgreSQL and services communicate using REST APIs

### Biomarker Sensing Android App | *Android Stdio, Kotlin*

- Architected and developed a Kotlin based Android app that can be used to **sense the current heart rate and respiratory rate** of the user with an accuracy of **94%**.

### Meal Detection System for Artificial Pancreas | *Python, Pandas, Numpy, Sklearn, Scipy*

- Designed and implemented a meal detection model to determine whether an individual has consumed a meal based on input insulin data. Leveraged **Random Forest Classifier technique** of supervised machine learning on a provided training dataset to create a model of **82% accuracy**.