

Soham Nag

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EDUCATION

Master of Science in Computer Science
Arizona State University, Tempe, AZ

August 2022 – May 2024
GPA: 4.0 / 4.0

Bachelor of Technology in Electrical and Electronics Engineering
National Institute of Technology Meghalaya, Shillong, India

August 2013 – May 2017
GPA: 8.6 / 10

TECHNICAL SKILLS

Languages: Java, Python, C, C++, JavaScript, TypeScript, HTML, CSS, Kotlin

Database: PostgreSQL, MySQL, MongoDB, Redis, Elasticsearch, SQL, NoSQL, NewSQL

Cloud: AWS (EC2, S3, Lambda, DynamoDB, RDS), Google Cloud (GCP), Microsoft Azure

Libraries and Misc.: Spring Boot, Next.js, React.js, Node.js, Express.js, Django, Redux, Zustand, GraphQL, Kibana, Git, Github, NPM, Yarn, Docker, Kubernetes, Ansible, Terraform, Firebase, Apache Kafka, Mockito, JUnit, Selenium, Postman, Jenkins, Agile, SDLC, CI/CD, Jira, GitLab, Gradle, Maven, Linux, Data Structures and Algorithms, Object Oriented Programming, Event Driven Architecture and Software Design Patterns

RELEVANT WORK EXPERIENCE

Graduate Research and Teaching Assistant
Arizona State University, Tempe, AZ

August 2022 – May 2024

- **Augmented a benchmark ID dataset by 5900%** for a **Department of Homeland Security** funded research project of developing a Generative Adversarial Network based privacy preserving fake ID detection system
- Performed an in-depth comparison of the performance of PostgresML (an in-database machine learning inference framework) against Sklearn, ONNX, Hummingbird, Treelite and **published the results in a paper in ACM SOCC'23**
- Facilitated grading for **500+ students** in courses 'Database Management', 'Data Intensive Systems for Machine Learning', 'Principles of Programming Languages', 'Engineering Blockchain Applications' and 'Distributed Software Development'

PROJECTS

- **Thesis Project: GAN based counterfeit identity document detection | OpenCV2, Pillow, Pytorch, Python**
 - Developed a workflow to create an identity document dataset containing **20 different types** of IDs pertaining to 10 US states and 10 European nations. Each type further has 4 sub-types containing different fraud patterns
 - Produced an entire dataset of 600k images which 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 with a sub 150ms loading time
 - Leveraged the efficiency of Supabase and Zustand for authentication and state management. Integrated **Stripe API for secure monthly subscription** payments and hosted the app on Vercel
- **Cloud-Native Trivia Application | Java, Spring Boot, PostgreSQL, AWS EC2, RDS, S3, Postman**
 - Architected a trivia application using Java and Spring Boot, leveraging **microservices** architecture to ensure scalability and modularity to handle 1000+ players simultaneously
 - Implemented **REST APIs** for user authentication, retrieving questions, submitting answers, and tracking scores. Utilized PostgreSQL as the backend database managed through Amazon RDS for 40% lesser database management overhead

OTHER EXPERIENCE

Operations Engineer

Power Grid Corporation of India Limited, Shillong, India

July 2017 – July 2021

- **Spearheaded a team of 5 employees** to collaborate with ABB Sweden, resulting in a **20% improvement** in power reliability for North-East India through commissioning **Asia's first** 800 kV, 3000 Megawatt high-performance HVDC transmission facility in Assam
- **Improved network performance and network downtime by 4%** by testing and troubleshooting the company's internal IT network and network devices