

# Tanvin Kalra

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## EDUCATION

### North Carolina State University

Raleigh, North Carolina

Master of Computer Science

August 2024 - Present

- **Relevant Coursework:** Design and Analysis of Algorithms, Operating Systems Principles

### The LNM Institute of Information Technology

Jaipur, India

Bachelor of Technology, Computer Science and Engineering (GPA: 8.97/10)

Graduation Date: July 2022

- **Accomplishments:** Facebook Hacker Cup '21-Round 2 (Rank 1971), Google Hash Code '21 (Rank 5749), Qualified for Round 1 Google Code Jam '21 and '22

## TECHNICAL SKILLS

- **Areas:** Algorithms, Cloud Computing, Data Structures, Distributed Systems
- **Programming Language: Proficient:** C++, Java, Python, SQL, **Intermediate:** C, Javascript, HTML, CSS
- **Frameworks:** Django, Spring Boot, Reactjs
- **Infrastructure:** Amazon Web Services (AWS), Docker, Kubernetes, DynamoDB, MongoDB, MySQL, PostgreSQL, Google Cloud Platform (GCP), Redis, Sentry, Git, JIRA

## WORK EXPERIENCE

### TartanHQ Solutions Private Limited

Gurugram, India

Backend Engineer

January 2023 - May 2024

- Maintained and extended the user management module using **AWS Cognito**, enabling B2B opportunities and **increasing the user base by 20%**, while scaling the system for multiple account creation flows, including **SSO** integration.
- Led a team to address VAPT findings, enhancing security by implementing **HTTP Security Response Headers** (Content-Security-Policy, X-Frame-Options) and integrating additional security checks into the codebase using **Spring Security**.
- Engineered a Consent Service to reduce customer verification timelines using **REST API** development in **Spring Boot** and **MySQL**.
- Reduced infrastructure hosting costs by migrating the cloud resources from **AWS** to a **multi-cloud architecture** without affecting system availability.
- Remodeled database relationships to enhance **MySQL** performance, resulting in more efficient data analytics dashboards.
- Orchestrated data migration from **DynamoDB** to **MongoDB** to save hosting costs using **Python** and **S3**.

### OYO

Gurugram, India

Software Development Engineer - 1

July 2022 - January 2023

- Programmed a **Backend For Frontend** service to handle UI requests, as well as fetch and aggregate data from multiple services using **Spring Webflux**.
- Improved the load time of the front-end service to less than 50% by introducing **pagination**.
- Optimized the performance of an API by reducing the response time by more than 70% with the help of **multi-threading**.
- Engineered a mechanism to emit audit logs to monitor data and probable security breaches using **Django Rest Framework** (DRF).

### OYO

Gurugram, India

Software Development Engineer Intern

January 2022 - July 2022

- Streamlined home-owner onboarding by reducing timelines through efficient backend enhancements using **Django Rest Framework** and remodeling the **PostgreSQL** database to accommodate new data fields.
- Extended the frontend service with new data information by designing UI components using **Next.js**.
- Upgraded the frontend service with a configurable Content Management System using **Strapi**.

### Amazon

Chennai, India

Software Development Engineer Intern

May 2021 - July 2021

- Developed and Integrated RESTful APIs to support remote activities using Kotlin.

## PUBLICATIONS

### A Comparative Study and Analysis of Time Series Forecasting Techniques for Indian Summer Monsoon Rainfall (ISMR)

ANTIC 2022

- Conducted a comparative analysis and hyper-tuned various **deep learning algorithms** (MLP, CNN, LSTM, and Wide Deep Neural Networks) to forecast ISMR using **TensorFlow's Keras API**.

## PROJECTS

### Generating Anime Characters Using DCGANs

November 2021

- Evaluated multiple **Deep Convolutional GAN** variants for generating anime characters, conducting ablation studies to assess the impact of components like latent space dimensions and Batch Normalization.

### Classification of Benign and Malignant Tumors

February 2021

- Examined machine learning classification algorithms (**KNN & SVM**) to predict whether a tumor is benign or malignant based on several biological factors.

## CERTIFICATIONS

- **SystemsExpert**
- **Algorithmic Toolbox**
- **CS50's Introduction to Artificial Intelligence with Python**
- **6.00.2x: Introduction to Computational Thinking and Data Science**
- **6.00.1x: Introduction to Computer Science and Programming Using Python**

September 2022

November 2020

July 2020

May 2020

March 2020