Angelia Mathai

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Data Science and Analytics Intern

A highly motivated Electronics and Communication Engineering student at the National Institute of Technology Calicut. I have a strong passion for technology, demonstrated through hands-on projects such as a movie aggregator platform built with Spring Boot ,utilized Docker containers to host microservices, earning 2nd runner-up at a hackathon. My interests lie in AI/ML and blockchain technology, and I am currently expanding my skill set by learning Solidity. As an active member of the AI Club at NITC, I regularly engage in collaborative projects and technical discussions. I have completed several data science and exploratory data analysis (EDA) projects, showcasing my proficiency in Python and related data science libraries. I am driven by curiosity and a love for learning, always eager to explore new opportunities and innovate in dynamic environments.

WORK EXPERIENCE

AI Club NITC • Kozhikode, Kerala, India • 10/2024 - Present

Member

CERTIFICATIONS

Machine Learning Specialization • 05/2024 - Present

Coursera

Bit N Build International Hackathon • 03/2024 - Present

Google Developer Student Clubs

Android Development Workshop • 02/2024 - Present

Google Developer Student Clubs

AWARDS & SCHOLARSHIPS

Code.INIT() Hackathon NITC

CSEA NITC

PROJECTS

Lightweight Microservice Architecture with Docker • 01/2025 - Present

National Institute of Technology Calicut

Code.INIT() Hackathon

- **Containerized Architecture:** Designed a **scalable microservices system** with **4+ independent services** (User Management, Data Storage, API Gateway, etc.).

EDUCATION

Bachelor of Technology - BTech in Electronics and Communications Engineering

National Institute of Technology Calicut

GPA: 9.45/10

01/2023 - 12/2027

- Completed Coursework: Foundations of Machine Learning, 2025
- Completed Coursework: Data Science , 2024
- Completed Coursework: VLSI Design , 2024
- Completed Coursework: Signals and Systems , 2024
- Completed Coursework: Semiconductor Devices , 2024
- Completed Coursework: Analog Devices , 2024

Minor in Artificial Intelligence and Machine Learning

National Institute of Technology Calicut

03/2024 - 05/2027

Minor in AI/ML

- Completed Coursework: Essentials of Machine Learning, 2025
- Completed Coursework: Neural Networks , 2025

SKILLS

- Analog Circuit Design
- Analytical Skills
- Android Development
- AngularJS

- **Docker & Orchestration:** Deployed each service in **separate Docker containers**, ensuring modularity and ease of scaling.
- **Inter-Service Communication:** Implemented **RESTful APIs** for seamless interaction between services, optimizing request handling and response times.
- **Data Persistence:** Integrated **MySQL** as the database layer, ensuring efficient storage and retrieval of structured/unstructured data.
- **Scalability & Deployment:** Enabled **horizontal scaling** and container orchestration with **Docker Compose**, supporting high availability.
- **Successfully spun up 4 Docker Containers**
- **High Availability & Fault Tolerance**: Ensured 99.9% uptime by leveraging horizontal scaling and container orchestration via Docker Swarm.

Movie Aggregator • 04/2024 - Present

National Institute of Technology Calicut

Bit n Build (GDSC)

• **Microservices-Based Architecture:** Developed a **scalable** movie aggregation platform using **React.js, Node.js, Spring Boot, and MS SQL Server**.

- **API Integration:** Integrated TV-API & OMDB API to fetch **real-time data for 10,000+ movies**, including ratings and streaming availability from IMDb, Netflix, and Rotten Tomatoes.
- **Efficient Backend:** Designed a **REST API** for seamless data management and a **scheduler service using Spring Boot** for automated updates.
- **Personalized Recommendations:** Implemented a **custom recommendation system** based on user preferences and reviews.
- **Scalability & Modularity:** Ensured **high availability** and maintainability using **Docker** and industry best practices

Machine Learning-Driven Detection and Diagnosis of Electrical Faults in Power Networks •

04/2025 - 04/2025

National Institute of Technology Calicut

machine learning-powered system that detects, classifies, and analyzes electrical faults in power systems using sensor and grid data to enhance system reliability, reduce downtime, and support predictive maintenance.

Analysis of Patents Granted in India (2018-2022) •

11/2024 - 12/2024

National Institute of Technology Calicut

Data Science Course (NITC)

- Communication
- Communication Eng
- Containerization
- Data Preparation
- Docker
- Engineering
- Flutter dev
- Front-End Development
- HTML
- Java
- JavaScript
- MySQL
- Node.js
- NumPy
- Pandas
- Python libraries
- Python (Programming Language)
- React.js
- Seaborn
- Signal Processing
- Spring Boot
- Supervised Learning
- Verilog
- Very-Large-Scale Integration (VLSI)

- **Data Acquisition & Structuring:** Collected and structured **100,000+ patent records** from data.gov.in, ensuring robust normalization techniques.
- **Data Cleaning & Preprocessing:** Processed **5 years (2018-2022)** of patent data using **Python (Pandas, NumPy) and SQL**, eliminating inconsistencies across **12+ key attributes** (e.g., filing year, number of claims).
- **Data Visualization & Insights:** Created **15+ visualizations** using **Matplotlib & Seaborn** to analyze trends in patent filings, dominant categories, and IPO locations.
- **Statistical Analysis:** Applied inferential statistics (**Mann-Whitney U Test, Anova test, T test, Z Score, Chi Square Test**) to compare the number of claims across IPO locations, validating key trends.