Nidhi Shekhar

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◇ Gmail ◇ LinkedIn ◇ GitHub ◇ Portfolio

Introduction and Education

Computer Science Engineering (7th sem) B.Tech undergraduate at PES University with hands-on experience in embedded systems, C, Linux, and IoT and Web development, seeking to contribute to cutting-edge software.

Research Intern | PESU-ISFCR *June 2024 – January 2025*

Comparative Analysis of Machine Learning Algorithms for Binary Classification of Tea Leaf Diseases

(Accepted at the 5th ICAECT | IEEE Conference in January 2025) *Published paper - IEEE Xplore*

Conducted research on plant disease detection using image processing techniques and advanced machine learning algorithms like autoencoders, self-organizable maps and more. Utilized Python, TensorFlow, Keras, and Scikit-learn, along with data visualization libraries like Matplotlib.

Work Experience | Part time intern at Drivool Technologies Pvt. Ltd. Jan 2023 - Present

Project PowerTap - Cloud connected Smart Electric Meter

Tools/Software/Protocols: UART, STM microcontroller, ESP32, ArduinoIDE, Wireless Technologies (Wi-Fi, BLE)

Tested firmware for real time electricity monitoring. Focused on firmware-level debugging, system-level integration, and functional testing to ensure reliable cloud connectivity.

Project ThirdEye – AI powered surveillance camera

Tools/Software/Protocols: RTSP, ONVIF, WebRTC, HTML, JavaScript, ISAPI, Jetson Orin Nano

Worked on a smart security system to log vehicle entry/exit data with custom AI algorithms for visual analysis (ALPR). Integrated RFID connected cameras and ISAPI for interfacing with surveillance hardware. Used Jetson Nano Orin for edge computing.

Exploration and hosting of microservices on an AWS EC2 instance

Tools/Software: AWS EC2, socket programming, MongoDB

Hosted microservices on an AWS EC2 instance and exposed the API. Developed and utilized multiple APIs for storing, retrieving, and deleting historical vehicle movement traces in MongoDB, hosted on an AWS EC2 instance, enhancing data management for GPS-based IoT solutions. Additionally, wrote cronjobs for deleting old historical data.

Projects

AWS Lambda Clone (Github) *Tools/Software: FastAPI, Streamlit, Prometheus, Grafana, Docker, Postgres*

. An AWS Lambda clone that lets users upload and execute Python/JS code in isolated environments like Docker or Firecracker. It features a FastAPI backend, Streamlit UI, and PostgreSQL for storing function code and execution logs. Prometheus scrapes metrics which are visualized live in Grafana dashboards. The platform simulates a cloud-native serverless experience.

Cloud based attendance system using RFID *Tools/Software: ArduinoIDE, ESP32-WROOM, Websockets*

Integrated various sensors (RFID readers, LCD, keypad) and an ESP32-WROOM microcontroller along with a custom socket program that leveraged the Wi-Fi capabilities of the ESP32 for real-time data transmission of attendance details and utilized an AWS EC2 instance for secure data storage and management.

Multithreaded Web Server in C (trashttp) *Software: C, pthreads, openSSL*

Designed to handle multiple client requests simultaneously using a thread pool and a work-stealing approach for efficient thread scheduling. The server supports basic HTTP functionality. Includes SSL support for secure communication.

Collaborative Skill and Project Management Platform with RESTful APIs *Software: Flask, SQL, React, Javascript*

Designed RESTful APIs for user authentication, skill/project management, and collaborations, with a Flask backend and MariaDB database. Version control managed through Git. (Github)

Ongoing research in ML: Quantifying bias in vision language models, using open-source models like BLIP.

Extra Curriculars and Awards

- Was among the top 100 teams all over India for **Deloitte's Hacksplosion** Hackathon. Reached the final round. (Came up with a mail order processing system utilizing RPA, NLP and Kafka)
- Served as Team Lead and won "Best Business Model canvas and Prototype" category in CIE L1 (Centre for innovation and entrepreneurship, level 1).
- Received the "Distinction Award Certificate" for scoring 8.5+ SGPA in the 5th semester.
- Performed for PESU's Music club event "Evanescence". Guitarist for the band "Exuberance".

Certifications

Getting started with Jira Work Management

AWS getting started with compute

Problem Solving in C (Intermediate)

CRM (Salesforce)

Relevant Coursework:

Computer Networks, Database Management Systems, Web Technologies, Operating Systems, Machine Learning, Software Engineering, Cloud Computing, Data Structures and Algorithms, Heterogeneous Parallelism, Applied Cryptography, Object Oriented Design and Analysis, Enterprise Business Technologies, Digital Forensics.