https://github.com/NandikaVuyyuri

Nandika Vuyyuri

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Education

University of Illinois at Urbana-Champaign | Urbana, IL
Bachelor of Science in Computer Engineering — Graduation: May 2025
GPA: 3.7
Accomplishments: Engineering Visionary Scholarship, Samsung Technology Track Scholarship**,** ECE merit, 800 SAT Mathematics

Experience

IBM (GitHub) — *May 2023-November 2023*
Software Engineering Intern [C++, python, SQL, TensorFlow]

- Migrated one million rows of sponsors and grants data into a multi-source academic database by using named entity recognition processes and machine learning algorithms
- Designed a database schema for PostgreSQL to optimize query performance and facilitate diverse data analysis needs
- Utilized python to create fuzzy string-matching algorithms such as trigram, metaphone, soundex, and partial name and achieved over a 90% matching accuracy while confirming the matches with other attributes such as country code

ISUR — *June 2022 – December 2023*
Machine Learning Research Intern [C++, python, TensorFlow, PyTorch]

- Analyzed detection mechanisms for security-related anomalies in UUV swarms in a research project funded by the US navy
- Reviewed previous machine-learning based techniques to optimize the security of real-time embedded systems to over 90%
- Developed 2-layered ReLu neural network model that achieves 100% accuracy on attack classification, also utilized Logistic Regression, SVM-RBF, and K-Means models for classification with python

Projects

HP & NVIDIA Developer Challenge [Python, PyTorch, Git, React, Docker] — April 2025-Present

- Creating an AI-powered rocket propulsion assistant that predicts engine thrust and specific impulse using combustion data

Antweight Battlebot Competition [C, Python, KiCad, CAD] (link) — February 2025-Present

- Designing an attacking vehicle using CAD, soldering, and researching vehicle dynamics and torque optimization
- Implemented real-time socket communication over TCP/IP using Python to control an ESP32-based battlebot via WiFi,

Not Just Hacks Competition [React, TypeScript, Git, SQL, UX/UI] — March-April 2025

- Developing and deploying a full-stack community food-sharing android app using React and Supabase to Google Play Store

Illinois Design Challenge 2025 [CAD] (link) — March 2025

- Developed a smartwatch integrated wearable that detects freeze responses in firefighters using biometric sensors

Uncommon Hacks 2025 [Flask, Python, Bootstrap] (link) — March 2025

- Implemented an image-based authentication system to replace traditional passwords improving usability and security for users with cognitive challenges

Hackathon Pulse Conference 2025 [Python, C] (link) — February 2025

- Created a python script that captures a specific region of a monitor display to detect any changes and converts the RGB values using OpenCV and displays the image in a new window to program LED strips utilizing color data via Raspberry Pi 2

Travel Database App [JavaScript, HTML, MySQL] — October-December 2024

- Collaborated with other engineers to develop a full-stack web application with user authentication, interactive Google Maps integration, dynamic attraction filtering, wishlist management using JavaScript, Flask, and Google Maps API and GCP

GPU Optimization [CUDA, C++] — April 2023

- Optimized Convolution Layers in LeNet-5 architecture using CUDA techniques such as using streams

NER Chrome Extension [HTML, Python, JavaScript] — March 2023

- Developed a Chrome Extension leveraging JavaScript and HTML to interact with web pages and extract text data for NLP
- Created a Flask-based REST API in Python, serving as a backend service to process extracted text data using Spacy's Library

Skills

Programming: Java, Python, C/C++, Rust, JavaScript, HTML, JEST, SQL, SystemVerilog, Node.js, CSS3, GraphQL, Express
Software: Android Studio, GitHub, Microsoft Office, Linux, CUDA, PyTorch, ROS, Dockers, Kubernetes, Vitis, Xilinx
Database: PostgreSQL, MySQL, Neo4j
Design: UX/UI, Scalability, Testing