Herman Singh Umrao

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Professional Summary

Ambitious Computer Science student specializing in AI & ML, with hands-on experience in emotion detection AI, full-system simulation, and open-source community building. Passionate about leveraging cutting-edge technologies to solve complex problems and drive innovation. Seeking opportunities to apply and expand my skills in AI, machine learning, and software development.

Experience

Tech Mahindra Cerium Pvt Ltd Jun 2024 - Jul 2024
AI Research Intern *Bengaluru, Karnataka*

Worked on a project ("AI based human emotion detection") and successfully demonstrated it working.

CIE center @ PES University Jan 2024 - May 2024
Research Intern *Bengaluru, Karnataka*

Conducted in-depth research on Intel Simics, a full-system simulator for chipsets, gaining expertise in Intel CISC and RISC-V motherboard architectures.

My task involved understanding the tool and identifying potential applications.

PES University Aug 2023 - Dec 2023
Teaching Assistant - SOC Design and Computer Architecture *Bengaluru, Karnataka*

I was working under some really great teachers (Nagegowda K S and Dr. Jayashree) in the SOC Design and Computer Architecture Dept, I made AV summaries for students which was put up on the official website of PES University.

LinuxLegion Jan 2024 - Present
Founder & Club Head *Bengaluru, Karnataka*

I worked with my friends to create a club along with them to start and nurture a healthy community of Linux-systems and open-source enthusiasts. Here, we hosted workshops which helped people understand why Linux is Linux .We tried to create and nurture a healthy community of Linux-systems and open-source enthusiasts.

Education

PES University Sep 2022 - Sep 2026 (Expected)
Bachelor of Technology: Computer Science (AI & ML) *CGPA: [Your CGPA]*

Relevant Coursework: Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Big Data Analytics

HAL Public School [Year] - [Year]
SSLC and PUC: Physics, Computer, Maths, Chemistry, English *Score: [Your score]*

Skills

Programming Languages: C, C++, Python3, Rust
Frameworks & Libraries: PyTorch, TensorFlow, OpenCV, libtorch
Tools & Technologies: Git, Docker, Linux (Ubuntu, Arch), Raspberry Pi, Arduino, RISC-V, Hadoop, Kafka, Spark
Concepts: Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Big Data Analytics
Soft Skills: Problem-solving, Team Collaboration, Technical Writing, Public Speaking

Projects

AI-based Emotion Detection System

I worked on detecting human emotions using a raspberry pi 3 .I used face landmarks to write an AI based human emotion recognition. The final model was able to discover emotions like happy, sad , laughing, and surprised.

Technologies: Python, Dlib, Mediapipe, PyTorch, TensorFlow

NLP-driven Sentence Completion Engine

Engineered a Markov chain-based sentence completion system from scratch in C++, capable of generating contextually relevant suggestions.

Scalable Big Data Environment (Hadoop Docker)

This was a collaborative project with a friend to setup multiple big data tools like kafka, hadoop, spark, hive, PostgreSQL, flume, hbase, yarn, pig, sqoop etc. All these tools were setup in a single docker image and made available to all.

Neural Network Library (In Progress)

Developing a scalable neural network library from scratch in C++, aimed at supporting various network architectures and optimization algorithms.

II understood how neural networks work so I am trying to write a simple scalable neural network from scratch in cpp. I am trying my best to make it as scalable as possible. I wish to write it up like a library so that it can be used in future for simple neural network implementations.

Face Detection

Used tensorflow to build a simple face detection model from scratch.

OpenCv projects

I have used opencv-cpp and opencv-python to build some simple projects like face detection, document scanner, camera based whiteboard etc.

PyTorch-cpp (libtorch) XOR perception

I built a simple XOR perception neural network after understanding how to use libtorch.