Harsh Premraj Vidhya

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https://harshpv07.github.io/Portfolio$_{New}$/ |

TECHNICAL SKILLS

C, C++, Python, SQL (Postgres), Data structures and algorithms, JavaScript, HTML/CSS, NodeJS, Network Protocols, TCP/IP stack, Terraform, Ansible, Django, scikit-learn, LLMs, Flask, Pandas, Keras, Bootstrap, PyTorch, Docker, ReactJS, OpenCV, Git, MongoDB, AWS, Languages - English, Hindi, Tamil, Malayalam

EDUCATION

University of Illinois - Urbana Champaign   Champaign, IL
Masters in Computer Science   *Jan. 2024 – May 2025*

Vellore Institute of Technology   Chennai, India
Bachelor of Technology in Computer Science (3.66 GPA)   *Aug. 2017 – May 2021*

EXPERIENCE

Systems Engineer   Aug 2021 – Dec 2023
Cisco Systems   *Mumbai, India*

- Developed new features for Cisco's configuration translation and configuration migration engine using ReactJS, and Django which resulted in a 30% increase in the adoption of Cisco products.
- Engaged in client interactions to design, deploy, and troubleshoot networks, while demonstrating expertise in configuring and managing network appliances such as Cisco switches, routers, firewalls, and cloud security solutions.
- Automated network deployments for global clients using frameworks such as Terraform & Ansible which reduced network deployment times by 90%.
- Obtained certifications such as CCNA, CCNP R&S, CCNP SCOR, DevNet, Meraki ECMS & AWS CSA.

Software Engineering Intern   Jan. 2021 – July 2021
Novartis AG   *Hyderabad, India*

- Developed an analytics dashboard using React, ChartJS, and Django, while creating ETL pipelines from various ITSM systems like Salesforce and ServiceNow through Snowflake.
- Developed an ML-powered capacity planning service using boosting algorithms such as XGBoost to benchmark 25+ project and team KPIs. This service was later integrated into the dashboard.
- Deployed the entire project on Azure cloud and gained expertise in Azure services such as Blob storage, AKS cluster, and Azure VMs, etc.

NLP Engineering Intern   May 2019 – Aug 2019
Siam Computing   *Chennai, India*

- Developed a customer-centric chatbot using RASA, featuring intricate dialog routes for distinct functions (e.g., recruitment, sales). Achieved a 40% reduction in contact center interactions through the deployment of an intelligent chatbot assistant.
- Developed a Django API service for the chatbot to interact with the PHP backend for data collection and storage.
- Engineered a smart attendance system leveraging facial encodings for recognition and attendance marking. Deployed it locally on a Raspberry Pi.

Research Assistant   Mar. 2019 – Jan 2021
Vellore Institute of Technology   *Chennai, India*

- Conducted a research project on image captioning for surveillance applications, employing Xception CNN and LSTM networks trained on the Flickr8K dataset.
- Implemented and fine-tuned image augmentation methods, including RotNet and rotation-invariant CNN, to significantly enhance model accuracy, specifically tailored for CCTV applications.
- **This research has been published as "Captioning for motion detection for video surveillance applications using deep learning" (IJITEE)**

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Teaching Assistant <div align="right">Mar. 2019 – May 2019</div>

Vellore Institute of Technology <div align="right">*Chennai, India*</div>

- Delivered a session on optimization techniques for deep learning which stemmed from my previous research on "Image captioning for surveillance applications. The session covered essential topics such as parameter tuning, loss reduction techniques, and augmentation strategies, providing students with valuable insights into optimizing their machine-learning models.
- Conducted practical sessions on network simulation tools such as GNS3, and Cisco Packet Tracer to provide practical insights to students who have taken the course CSE 1004.

PROJECTS

Clarity | *Pytorch, Streamlit, Langchain, OpenAI, HuggingFace, BS4, Bootstrap*

- An AI-powered Q&A bot that creates a knowledge base for sales professionals just by uploading reference materials such as PDFs and URLs to the system. It extracts information from the PDFs and URLs and fetches data from it based on the input query from the user thereby reducing TAT for customer-facing professionals.

NetBot | *Pytorch, Django, Langchain, HuggingFace, Bootstrap*

- The AI-powered policy management engine utilizes the Code Llamma LLM to interpret user intent expressed in plain English, eliminating the need for IOSXE CLI commands. Trained on a dataset of IOSXE commands, the model employs advanced language processing techniques to generate corresponding commands for suggested network policy changes. This innovative system enhances user accessibility by allowing for intuitive, language-based input, streamlining the policy adjustment process.

Police Surveillance Assistant | *Python, Flask, React, GCP, CNN, LSTM, CoCo, MongoDB, OpenCV, Dialogflow*

- An intelligent surveillance system that can monitor activities and track miscreants at each location without human intervention. **This project has been recognized by the Government of India via the SIH hackathon.**
- The system operates by concurrently processing live video inputs through face and object recognition modules. Upon detection of anomaly events, an interrupt is generated to promptly alert the nearest police depot. Interaction with the system is facilitated through a built-in chatbot, providing the administrator with a responsive interface for managing and addressing detected anomalies in real time.

Personal Assistant for Blind | *Python, Flask, React, GCP, Docker, OpenCV, Dialogflow*

- The AI assistant for the visually impaired integrates modules for friend detection, currency recognition, and image-to-text conversion into one single product. The distributed camera feed enables real-time processing of visual information. Voice commands serve as the primary interaction method for the visually impaired user. A specialized deep learning model has been trained for Indian currency recognition, providing accurate denomination counting. The friend detection module employs computer vision techniques, while the image-to-text conversion module relies on OCR algorithms for high-precision text extraction.

DA - Developer Assistant | *Python, Flask, Dialogflow, Git*

- A quick and hassle-free development tool for developers which consist of quick project setup, source control, auto debugging. **This project has been patented under the ID 201941053665, issued on 03/01/2020.**

Motion Detection and Image Captioning based surveillance system | *Python, Pytorch, Pandas, Keras, CoCo dataset, O*

- An Image captioning software that gets triggered on motion and notify the user about any possession of weapons or illegal activity in the live CCTV feed.

ACHIEVEMENTS

FY23 Achievers Award | *Cisco Systems*

FY23 Q4 TSS Excellence Award | *Cisco Systems*

ASE Excellence Award - Q3 FY22 APJC Region | *Cisco Systems*

Winner - SIH 2020 | *Government of India*

Runners up - Hack the COVID | *IBM*

Winners - Parallax Hackathon | *VIT*

Winner - JU Hackathon | *McAfee*