**Niharika Dhanavath**

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**Objective**

Aspiring Software Engineer with a strong foundation in computer science principles and hands-on project experience. Seeking an opportunity to apply my technical proficiencies in Python, C++, and machine learning to develop sustainable technology solutions. Eager to contribute innovative software that helping our planet to become a better place.

**Education**

**Masters in Computer Science -** Western Michigan University, MI (GPA: 3.4) Expected April 2025

# B. TECH in Computer Science - TKR College of Engineering and Technology, India (GPA:7.4/10) 2019-2023

# Technical Skills

* **Programming**: Python, C++, SQL, Java, OpenCV.
* **Web Technologies:** HTML, CSS, JavaScript.
* **Frameworks:** Django or Flask.
* **Database:** SQL, NoSQL
* **Cloud Technologies**: Azure, Azure Migration.
* **Data Governance/Data Management tools**: GitHub, Jira.
* **Agile Tools & CI/CD**: Jira, GitHub, Kanban, Azure DevOps.
* **Machine Learning**: Supervised and unsupervised learning, Decision Tree.
* **Python Packages**: NumPy, Pandas, Scikit-Learn, Sea-born.
* **Microsoft Tools**: Excel, PowerPoint, Word.

# Academic projects

1. **RAG Chatbot**: The RAG Chatbot project develops an advanced system for analyzing text from PDF documents and images using LangChain, Gemini, and LLaMA models.
   * Developed a sophisticated RAG chatbot using Python, integrating advanced NLP models including Google's Gemini and LangChain.
   * Utilized Google GenerativeAI for embeddings and chat completions, demonstrating proficiency with state-of-the-art language models.
   * Engineered an efficient document processing pipeline using PyPDF2 for text extraction and RecursiveCharacterTextSplitter for chunking.
   * Integrated image analysis capabilities using Google's Gemini Pro Vision model for extracting and reasoning about textual content in images.
   * Delivers seamless and effective solutions for text analysis and informational retrieval.
2. **Lane Detection using OpenCV:**

* Developed a robust lane detection system using Python and OpenCV, capable of processing both static images and video inputs.
* Implemented computer vision techniques including Gaussian blur, Canny edge detection, and Hough transform for effective lane line identification.
* Designed a region of interest (ROI) function to focus processing on relevant areas of the image, improving efficiency and accuracy.
* Created a flexible input handling system that supports multiple image and video formats (jpg, png, jpeg, mp4, avi, mkv)
* Implemented real-time video processing with a user-friendly display interface using OpenCV's windowing functions.
* Applied image blending techniques to overlay detected lanes on the original image for clear visualization.

1. **Real-Time Object Detection Using MATLAB:**

* Designed and developed a real-time object detection system using MATLAB, exemplifying a strong command of computer vision and image processing principles.
* Leveraged advanced computer vision techniques, including Blob Analysis for feature extraction, Gaussian Matrix Method for noise reduction, and Single-Mode Background Analysis for real-time scene understanding.
* Implemented a comprehensive, end-to-end solution for real-time object detection, from image acquisition to object recognition, tracking, and visualization.
* Conducted rigorous testing and optimization to ensure high accuracy, real-time performance, and robustness in varying environmental conditions.

1. **API Integration, Riipen: API Integration for 2Point Delivery Ltd. | HTML, CSS, Python, SQL:**

* Integrated third-party APIs into a web app and generate API’s.
* Used Secureship’s API to get shipping rates, track shipments, create shipping labels, schedule pickups, pull orders, view history, and do so through the API. Our client’s system uses Secureship API for their delivery and logistics business.

1. **Cyberbullying detection using Machine Learning | HTML, CSS, Python, SQL**: Built a web app that predicts if any tweet is considered bullying or not bullying and utilized Machine Learning and its algorithms to build the code.
   * Machine learning algorithms.
   * Finding a negative tweet by the user.

# Relevant Experience

# Career Ambassador August 2024 - present

**Western Michigan University**

* Conduct drop-in career advising sessions, offering personalized guidance on resume improvements for fellow students.
* Assist students with Handshake utilization, enhancing their access to valuable career resources.

# Computer Lab Monitor / Hyflex Assistant August 2024 - present

**Western Michigan University**

* Assisted faculty and staff with equipment exchanges with computing staff.
* Provided friendly customer service and worked on additional projects as assigned.

**Dining Office Assistant Sept 2023 - April 2024**

**Western Michigan University**

* Provided essential support to student employees and Managers.
* Contributed to a smooth and efficient workflow by processing vouchers and maintaining spreadsheets and accurate records.