JohnPaul Vela

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Orange County, California
U.S. Citizen
Portfolio · LinkedIn

Seeking a software engineering internship to apply my nine years of programming experience and strong foundation in full-stack development and machine learning. Currently a computer science student passionate about building data-driven solutions.

SKILLS

Python, Java, C#, C++, SQL, JavaScript, HTML, CSS, Flask, NumPy, Pandas, TensorFlow, Scikit-Learn, Matplotlib

Problem Solving, Linux, Data Structures, Google Cloud, GitHub, Rest, Web Scraping, LLM, NLP, ML, LangChain

EDUCATION

Concordia University Irvine
Bachelor of Science in Computer Science
GPA: 3.81 / 4.0

WORK EXPERIENCE

Research Software Developer - Lifestyle and Parkinson's Longitudinal Study | September 2024 - Present
Concordia University Irvine

Developed full-stack health report generation software | Python, Flask, Pandas, HTML, JS, CSS

- Process datasets with over 100 patients and 850+ variables each via custom REST API using Flask
- Implemented data validation algorithms, identifying a 2.5% error rate using empty cell detection and standard deviation
- Designed a batch processing system in Python to generate 100+ per-patient PDF reports, integrating JSON-based interpretation
- Enhanced patient reports with data visualizations in Matplotlib, showing condition progression over time

PROJECTS

K-Nearest Neighbors Classifier From Scratch | Python, NumPy, Pandas | February 2025

Implemented a custom K-Nearest Neighbors (KNN) classifier from scratch similar to sklearn

- Developed a vectorized KNN algorithm supporting Euclidean, Manhattan, and Cosine distance metrics on multidimensional data
- Optimized neighbor search using NumPy, reducing computation time compared to naive loops
- Designed an intuitive API for training, predicting, and evaluating classification accuracy
- Integrated Scikit-learn datasets for testing, achieving over 90% accuracy on synthetic classification tasks
- Visualized classification results on 2D data using Matplotlib for clear performance insights

Jarvis Assistant | Python, LangChain, CNN, LSTM, IoT | Demos | April 2023 - June 2023

An NLP AI and home automation project

- Developed a web dashboard for manual control, data feeds, and AI agent control using Node.js and React.js
- Trained a custom neural network (LSTM) using TensorFlow to classify natural language commands, achieving 95% accuracy
- Trained a custom convolutional neural network (CNN) using TensorFlow to detect a wake word like "Hey Google" but "Hey Jarvis" within live audio signals.
- Integrated zero-shot ReAct reasoning to dynamically select from 5 automation tools for the AI agent

YouTube Semantic Search | Python, NLP | GitHub | May 2023

Developed a Python API that finds a timestamp in a YouTube video from a question

- Converts YouTube transcript to text embeddings using sentence transformers to make video searchable
- Find the most relevant embeddings to the question using cosine similarity to answer the question
- Generates a link using the timestamp attached to the most relevant embedding document

Podcast Research Tool | Node.js, HTML, CSS, React.js, Bootstrap | September 2022 - November 2022

Developed a full-stack web app for writing notes and keeping and previewing online sources

- Implemented web scraping with Puppeteer to capture and store real-time previews of sources
- Designed and deployed a REST API to serve source previews, reducing number of tabs to 1
- Secured user data with bcrypt-hashed passwords and stored all records in a MySQL database

RELEVANT COURSES

Object Oriented Programming
Server Side Development
Data Structures and Algorithms
Machine Learning
Information Security
Networking

LANGUAGES

English
Fluent

Spanish
Advanced

Chinese
Beginner