JohnPaul Vela

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Orange County, California
U.S. Citizen

Software Engineer

Full-Stack Development | Data Analysis & Machine Learning

SKILLS

Python, Java, C#, C, C++, PHP, SQL, JavaScript, HTML, CSS

Flask, NumPy, Pandas, TensorFlow, Scikit-Learn, React, Node.js, Bootstrap, Problem Solving

Linux, Data Structures, Heroku, Google Cloud, GitHub, Rest, TCP/IP, Web Scraping, Data Analytics

WORK EXPERIENCE

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

Developed full-stack report generation software

- Process datasets with over 100 patients and 850+ variables each
- 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

YouTube Query | Python, Semantic Search | 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

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

An AI and home automation project

- 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"
- Integrated zero-shot ReAct reasoning to dynamically select from 5 automation tools, completing a task without predefined rules

Streamflow Forecast | Python, REST API | October 2023

Developed a Python data analysis tool to forecast stream flow volume using historical data pulled from the internet

- Automated retrieval of 1,344 data points (15 minute interval over 14 days) from USGS to get historical stream flow data
- Applied linear regression to forecast stream flow (cubic feet per second) for the upcoming week.
- Analyzed and visualized peak and minimum flow trends over the past 10 years to identify historical extremes.

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

EDUCATION

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

RELEVANT COURSES

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

LANGUAGES

English
Fluent

Spanish
Advanced

Chinese
Beginner