Bert Joseph Prestoza

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Education

University of California, Davis — Davis, CA
Bachelor of Science in Computer Science, GPA: 3.9, With Honors — *Jun. 2024*

Relevant Coursework

- Data Structures & Algorithms
- Software Engineering
- Web Development
- iOS Development
- Programming Languages
- Machine Learning
- Deep Learning
- Computer Vision
- Computer Networks
- Operating Systems

Experience

Undergraduate Research Assistant — Oct. 2023 – Present
Computational Communication Research Lab, UC Davis — *Davis, CA*

- Developed and executed Python scripts to scrape webpages for over 500k+ models on Hugging Face, extracting and collecting licensing terms, usage conditions, disclosure of model parameters, and community contribution guidelines to analyze complexities and choices in open-source model licensing policy.
- Scanned and analyzed license files to determine the use of standard SPDX licenses in open-source models. For non-standard licenses, further analysis was conducted using an in-house developed NLP (Natural Language Processing) tool to search for terms and phrases relevant to open-source licensing policies.
- Conducted periodic data integrity checks and created visualizations to guide strategic decision-making and provide insights into data trends.

Projects

Tune In | *SwiftUI, Firebase, SpotifyAPI, MapKit*

- Engineered a social music discovery app utilizing SwiftUI and MapKit for location-based music sharing and exploration. Leveraged Firebase for real-time data synchronization, user authentication, and media management, integrating SpotifyAPI for music data retrieval.
- Implemented a map-based user interface showcasing nearby users and their current music tracks, using Geohashing for precise location filtering. Incorporated a mood analysis feature that evaluates audio features and displays the collective mood of users in proximity.

Chirpr | *Node.js, Express, SQLite, Handlebars, JavaScript*

- Developed a microblog application using Node.js, Express, and SQLite, featuring user authentication via Google OAuth 2.0, post creation, deletion, keyword-based search, real-time likes, and comment system.
- Implemented profile photo management, emoji selection using Emoji API, and a dynamic user interface with customizable sorting options to enhance user interaction.

Facial Expression Recognition | *Python, PyTorch, OpenCV*

- Developed a real-time facial expression recognition system using Python, PyTorch, and OpenCV, which captures live video feed from a webcam, detects and preprocesses face images, classifies facial expressions using a trained CNN model, and overlays bounding boxes and predicted emotions on each detected face.
- Designed and trained a Convolutional Neural Network (CNN) on the FER-2013 dataset to recognize seven facial expressions, achieving approximately 70% accuracy. The model architecture included convolutional layers with batch normalization, max-pooling, and dropout for regularization.

Task Organizer App | *JavaScript, MongoDB Atlas, Express, React, Node.js*

- Developed a full-stack to-do list app with a React front-end, Express and Node.js back-end, and MongoDB Atlas database. Deployed as a static site on Render.
- Implemented comprehensive CRUD operations for task management, allowing users to create, read, update, and delete tasks, with features such as title, description, and due date.

Technical Skills

Languages: Python, C, C++, Swift, Java, HTML, CSS, JavaScript, SQL, R, Go, Lisp, Prolog, Bash
Frameworks/Libraries: SwiftUI, React, Node.js, Express, PyTorch, OpenCV, Tailwind CSS, Handlebars
Databases: Firebase, MongoDB, SQLite
Developer Tools: Git, GitHub, Visual Studio Code, XCode, PyCharm, IntelliJ IDEA, RStudio, Unix/Linux