JOSEPH MANNING ELLIS

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EDUCATION

University of Southern California — Los Angeles, CA
Master of Science — August 2024-May 2026
Applied Data Science | Viterbi School of Engineering — **GPA: 3.86**

Chapman University — Orange, CA
Bachelor of Science — August 2020-May 2024
Data Analytics | Fowler School of Engineering — **GPA: 3.86**
Minor in Business Administration

TECHNICAL SKILLS

Programming Languages: Python | R | SQL | C++ | HTML
Data Analysis & Visualization: Pandas | ggplot | Plotly | NumPy | Matplotlib
Machine Learning: Keras | Tensorflow | PyTorch | LLMs | NLP | Langchain | Computer Vision | Deep Learning
Software Deployment: Google Cloud Platform | Docker | git | Amazon Web Services | Firebase | REST API | Flask | Redis

EXPERIENCE

PushButton.AI - Course Building Program — Orange, California
Machine Learning Engineer — January 2024-Present

- Implement packages and functions for high-token-output RAG systems leveraging recursive calls and prompt engineering, increasing model output capacity by 5×
- Research and deploy 1 Docker and up to 5 Redis servers on DigitalOcean to enable API-based utilization of RAG systems and course-building programs
- Design and refine prompts to produce 10,000-word program outputs as functional HTML code, ensuring readability from 6th to 12th grade levels
- Modify agentic workflows to convert course outlines into 12 lessons, deploying task IDs and updates for real-time tracking

Ovrsee
Co-Founder | Cloud Engineer — January 2024 – October 2024

- Develop API services via Google Cloud Functions handling TikTok OAuth workflows, processing 48+ daily requests per user
- Streamline user metric aggregation (daily/weekly/monthly) using Firebase with automated Cloud Task scheduling - achieving 90% front-end speed improvements
- Integrate API operations with Firebase to manage user authentication while structuring database storage systems for 3 customers: brand owner, manager, and creator
- Enforce encrypted key management and validations for API requests, safeguarding TikTok API access and user data integrity

PROJECTS

Human Activity in VR Research — July 2022-May 2023

- Design 13 modular functions to generate advanced 3D models and visualize VR hand/object trajectories through dynamic line charts
- Leverage movement pattern visualizations to design novel rule-based system for identifying and labelling user actions
- Implement unsupervised ML models analyzing 8 movement trajectory types for VR activity prediction using spatial pattern

TikTok Virality Predictor — March 2024-May 2024

- Trained computer vision model built on ResNet (2+1)D leveraging PyTorch to predict virality from TikTok video input
- Wrote web scraping scripts to download and process TikTok videos using Python and Pandas to engineer virality score

DrugAI-CVAE — May 2024

- Built and trained an Autoregressive CVAE in PyTorch to generate novel drug molecule sequences (SMILE) based on target proteins

HONORS

Provosts List (GPA above 3.8 for a semester) 2020-2024 — Chapman University
Program Honors — Chapman University
Excellence in Computing Studies — Association for Computing Machinery