Ali Momennasab

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Education

California State Polytechnic University, Pomona 8/2022 - 12/2025 (Expected)
Bachelor of Science, Computer Science, Minor in Data Science Pomona, CA

- GPA: 3.93/4.0
- Relevant Coursework: Algorithms, Machine Learning, Cloud Computing, GPU Computing, Computer Vision (graduate level)
- Activities & Awards: Computer Science Society, Software Engineering Association, Dean's List

Experience

Cardiac Vision Lab, University of California, San Francisco 6/2023 - Present

- Researching deep learning segmentation methods of hearts in ultrasound images under Professor Jan Christoph.
- Implemented a U-Net model with Pytorch that simultaneously processes consecutive ultrasound heart frames to capture temporal heart motion, resulting in a 16% improvement in F1 score and more realistic prediction segmentations.
- Expanded the U-Net pipeline with on-the-fly 3D data augmentation and customizable architecture (convolutional blocks, residual blocks, attention gates) and loss function configurations, achieving a best F1 score of 0.92 using residual blocks with Dice+BCE loss.
- Automated synthetic 3D heart ultrasound data generation in MATLAB, producing hundreds of volumes daily to improve dataset diversity and segmentation accuracy.

Kosaraju Lab, California State Polytechnic University, Pomona 1/2025 - Present

- Researching classification and survival analysis of whole-slide cancer images under Professor Sai Kosaraju.
- Developed a CNN for cancer survival prediction by transforming unstructured, large-scale slide images into compact HipoMap representations and reducing multi-omics genomic data (DNA, CNA, mRNA) with PCA, achieving C-index survival prediction scores of 0.95 (brain) and 0.73 (lung).
- Built a vision transformer and graph neural network framework that transforms whole-slide images into tile-level embeddings and graphs to predict recurrence likelihood and cluster cancer subtypes.

Code Ninjas Hacienda Heights 6/2023 - 8/2024

- Taught classrooms of 20+ elementary to high school-aged students programming and problem-solving skills with Unity, Roblox Studio, and Microsoft MakeCode.
- Led weekly website development summer camps, co-developing and teaching a hands-on HTML, CSS, and JavaScript curriculum.

Projects

Music Genre Transfer | github.com/alimomennasab/CS4990-Generative-AI 5/2025

- Implemented and evaluated VAE, GAN, and WGAN models for symbolic music genre transfer, achieving the most stable and realistic songs with VAEs.
- Preprocessed and tokenized jazz, pop, and classical MIDI song files into NOTE_ON, NOTE_OFF, and TIME_SHIFT sequences, allowing training across multiple musical genres.

Research Paper Summarizer | github.com/alimomennasab/paper-summarizer 5/2025

- Built a full-stack web app using a React interface, Next.js routing, and Flask backend API for generating summaries of research papers with the OpenAI GPT-4o API.
- Implemented file upload handling, PDF text extraction, and prompt engineering to deliver accurate, real-time summaries.

NFL Mock Draft Simulator | github.com/alimomennasab/NFLMockDraft 8/2024

- Created an NFL mock draft simulator by web scraping data for 32 NFL teams, 250+ draft picks, and 200+ draft prospects with Selenium, storing the collected data in a PostgreSQL database backend.
- Designed and implemented a responsive user interface with React and TailwindCSS, featuring draft simulation and an interactive trade system.
- Implemented server-side rendering and API routes with Next.js, utilizing Prisma for efficient database queries.

BroncoDirectMe | broncodirect.me 8/2022

- Contributed to a Chrome extension used by 400+ Cal Poly Pomona students to streamline class registration, which earned the Google Featured Extension badge for quality and usability.
- Developed new portal features with React, TypeScript, and Material UI, including average GPA displays and RateMyProfessor integration via REST APIs.

Skills

Languages: Java, C/C++/CUDA C, Python, TypeScript/JavaScript, Swift, Kotlin
Frameworks & Tools: React, Next.js, Node.js, Express, PyTorch, TensorFlow, GitHub/GitLab, Figma
Databases & Cloud: MongoDB, PostgreSQL, Prisma, AWS