

## EDUCATION

### University of California, Los Angeles

*Bachelor of Science in Mathematics of Computation*

**Los Angeles, USA**

*Expected Jun 2027*

- Relevant Coursework: Multivariable Calculus, Differential Equations, Linear Algebra, Optimization, Applied Numerical Methods, and Introduction to Computer Graphics.

## PUBLICATIONS

*\* denotes equal contribution*

### Conference

#### **Enhanced Landmark Detection Model in Pelvic Fluoroscopy using 2D/3D Registration Loss**

**Chou Mo\***, Yehyun Suh\*, J. Ryan Martin, Daniel Moyer

[Oral Presentation] SPIE Medical Imaging, 2026, Vancouver, Canada

#### **Landmark Detection Uncertainty as a Reliability Weight for Robust Landmark-based 2D/3D Pelvic Pose Estimation**

Yehyun Suh, Brayden Schott, **Chou Mo**, John Ryan Martin, Daniel Moyer

Medical Imaging with Deep Learning (MIDL), 2026, Taipei, Taiwan

## RESEARCH EXPERIENCE

### UCLA Medical & Imaging Informatics

*Undergraduate Researcher* (Advisor: William Hsu, Ph.D.)

**Los Angeles, USA**

*Oct 2025 – Present*

- Adapted the Iterative Optimal Transport (IOT) framework from 2D multimodal image registration to 3D intra-patient lung CT registration using pulmonary vessel point clouds. Designed a 3D Förstner corner detector for structure-aware point sampling. The best configuration achieved a 59.9% reduction in the mean nearest-neighbor distance on the PVT1010 dataset. Continuing project with planned extensions, including multi-subject evaluation and motion-weighted sampling for spatial variance reduction.

### Massachusetts General Hospital Research Institute

*Undergraduate Researcher* (Advisor: Fangxu Xing, Ph.D.)

**Massachusetts, USA**

*Sept 2025 – Present*

- Developing a continuous-time diffeomorphic Neural ODE framework for joint cardiac MRI registration and heart failure (HF) subtype classification. Built a differentiable U-Net velocity field encoder with scaling-and-squaring integration (guaranteeing diffeomorphic deformations), a Graph Attention Network over AHA 17-segment myocardial mesh, and a Neural ODE latent trajectory model over irregularly sampled cine MRI frames.

### Vanderbilt University School of Engineering

*Summer Researcher & VISE Summer Fellow* (Advisor: Daniel Moyer, Ph.D.)

**Nashville, USA**

*May 2025 – Aug 2025*

- Designed a novel pose estimation loss (PEL) framework integrating differentiable 2D/3D landmark registration into U-Net training for automated pelvic landmark detection in fluoroscopy, using soft-argmax heatmap extraction and L-BFGS-based SE(3) pose optimization to directly penalize geometric registration error.
- Demonstrated that sequential fine-tuning with PEL outperforms joint composite loss training. The fine-tuned model achieved an 8.45 px RMSE on novel views and a 5.09 px RMSE on novel subjects (8.8% improvement over the baseline), evaluated on 9,000 DiffDRR-simulated X-rays from 90 CT scans.

## PROJECT & WORK EXPERIENCE

### Continuous Human Pose Data Recognition with CNN and Transformer

*Jan 2024 – Jan 2025*

- Built a hybrid CNN-Transformer model to classify human poses from continuous frame sequences, achieving 87% overall accuracy on a labeled dataset of 20 distinct poses.
- Processed delta changes in key skeletal joint positions extracted from 8,000+ frames of motion data to capture dynamic transitions between poses.
- Optimized the model for real-time inference with a latency of ~120ms per frame, suitable for near-live applications. Improved pose recognition performance by 9% through a custom preprocessing pipeline.

### VisionX

*Software Engineer & Data Analyst Intern*

**San Jose, USA**

*Jun 2024 – Dec 2024*

- Promoted to a client-facing role, building an RAG and LLM inference pipeline using Qwen, JSON, and SQL. Independently architected and launched a Web 3.0 forum feature using Node.js, GPT API, and MongoDB, deployed on AWS SDK with a user-data recommendation system.

## SKILLS & INVOLVEMENT

**Leadership and Extracurricular:** UCLA University Rovers Challenge (Programming Lead), UCLA Data Science Union (Project Co-lead), UCLA Club Sports Sailing (Skipper & Crew)

**Programming Languages:** *Proficient* - Python; *Intermediate* - C++; *Introductory* - C, Java, JavaScript, and R.

**Technical skills:** Pandas, Numpy, TensorFlow, PyTorch, Node.js, OpenCV, SQL, Git, ROS, MATLAB, ITK-Snap, Slicer.