Joe Lin

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EDUCATION

University of California, Los Angeles   09/22-06/25
Computer Science, B.S.   Major GPA: 4.0

Coursework: Deep Learning, Computer Vision, Diffusion Models, Reinforcement Learning, Computer Organization, Autonomous Rover, Operating System Principles, Graphics, Linear Algebra, Statistics, Real Analysis, Differential Equations
Societies: Upsilon Pi Epsilon (CS Honor Society), Tau Beta Pi (Engineering Honor Society)

PUBLICATIONS

Zhizheng Liu, _Joe Lin_, Wayne Wu, Bolei Zhou. **Learning to Generate Diverse Pedestrian Movements from Web Videos with Noisy Labels.** In International Conference on Learning Representations (**ICLR**). 2025.

EXPERIENCE

Zhou Lab at UCLA | _Undergraduate Researcher_   04/24-Present
- Researching methods for diverse and realistic **pedestrian motion generation** in urban scenarios (_Paper accepted to ICLR_)
  - ▸ Designed **diffusion model** components for context-aware and long-term **pedestrian motion generation**
  - ▸ Created **motion visualizations** for proposed human motion dataset constructed from outdoor web videos
  - ▸ Evaluated proposed method on **Waymo Open Dataset**
- Improving **human motion recovery** and **dense scene reconstruction** w/ joint opt. (_Paper under review for CVPR 2025_)
  - ▸ Engineered multiple components of the **human-scene contact optimization** procedure contributing to **SOTA results**
  - ▸ Conducted evaluation and **ablation** experiments

PROJECTS

RSNA Abdominal Trauma Detection | _PyTorch, NumPy, pydicom, WandB, Tensorboard_   08/23-10/23
- Engineered **end-to-end pipeline** for organ injury detection using **ResNet** backbone
- Reduced **class imbalance** across all injury types using a **weighted random sampling** technique
- Enhanced model with a **Vision Transformer** backbone and integrated organ segmentations with **TotalSegmentator**

UCLA Automated Delivery Bot | _PyTorch, NumPy, OpenCV, ROS, Ubuntu VM_   10/22-Present
- Developed steering algorithm based on **DeepLabv3** segmentations and programmed pipeline into ROS modules
- Created script to compute estimation of ego vehicle's traversable region using **Inverse Perspective Mapping**
- Researching **YOLOv8** architecture for time and space efficient detection on edge devices

Radar-Based Object Detection for Autonomous Vehicles | _PyTorch, NumPy, OpenCV_   06/21-08/22
- UCSB Research Mentorship Program, ZadarLabs
  - ▸ Conducted performance analysis on unsupervised algorithms: **DBSCAN**, **Graph-Based DBSCAN**, and **OPTICS**
  - ▸ Researched **Region Proposal Networks** and existing architectures (**VoxelNet**, **YOLO**) to formulate model proposal

Lynbrook High School Mobile App | _React Native, Typescript, Expo, Firebase, Django_   09/19-08/22
- Developed cross-platform app for **2000+ students** to access school news, clubs, events, and other campus resources
- Provided an automated attendance tracker for **20+ clubs**, eliminating club management inefficiencies

SERVICE

exploretech.la | _Executive Co-Director + Content Co-Director + Member_   10/22-Present
- Led a **4-week** program for **30+ students** to explore Machine Learning, Web Development, and Game Development
- Enhanced the educational experiences of **500+ students** from underserved LA high schools with **technical workshops**

SKILLS

Programming Languages: C, C++, Python, Javascript, Typescript, Java, R
Machine Learning/Data Science: PyTorch, Tensorflow, Deep Learning, Computer Vision, Natural Language Processing, OpenCV, Scikit-Learn, nltk, NumPy, Matplotlib, Tensorboard, pydicom
Web Frameworks: React, React Native, Next.js, Expo, Vercel, Tailwind
Other: Git, Linux, MongoDB, Firebase, Supabase, Django, Google Cloud, ROS, RStudio, BeautifulSoup, Arduino