

Chenda Duan

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Education

University of California, Los Angeles (UCLA)

2024.09 – Expected 2029.06

Ph.D in Electrical and Computer Engineering

Los Angeles, CA

- **Associate Teaching Instructor:** Data Mining, Probability and Statistics.
- **Focused on:** AI for Science, LLM/LMM, Data Analysis, and general Machine Learning.

University of California, Los Angeles (UCLA)

2022.09 – 2024.06

Master of Science in Computer Science

Los Angeles, CA

- **GPA: 3.9/4.0**
- **Teaching Assistant:** Computer Organization, Computer Graphics
- **Core Courses:** Large-scale Machine Learning, Generative Models, Reinforcement Learning, Advanced Computer Architecture, Data Mining, Cloud Computing, Adversarial Robustness, Parallel Computing, Hardware for machine learning.

University of California, Los Angeles (UCLA)

2019.09 – 2022.06

Bachelor of Science in Computer Science

Los Angeles, CA

- **GPA: 4.0/4.0**
- **Honor:** Summa Cum Laude, Dean's Honors List
- **Core Courses:** CV, NLP, Machine Learning, Probability, Linear Algebra, Algorithms, Software Engineering, Database, Computer Organization&Architecture, Operating Systems, Network, Programming Languages

Technical Skill

Programming Language: Python, C++, Java, SQL, Javascript, R

Frameworks & Tools: Docker, React, Git, Linux, Cloud (GCP), PyTorch, TensorFlow, ROS

Work / Research Experience

UCLA Prof. Roychowdhury's Group (Python, Machine Learning, Data Analysis)

2024.6 – Present

Ph.D Student, Researcher

Los Angeles, CA

- Designed memory-augmented LLM framework for doing RAG and long-context QA.
- Analyzed large-scale temporal neuro data and developed models to decode human memories.
- Developed diagnosis pipeline that can process and analyze large-scale medical data to estimate the cause of epilepsy.

Kuaishou Technology (Python, Pytorch, Machine Learning, Computer Vision)

2023.6 – 2023.9

Vision Algorithm Research Engineer - Y-Tech Team

Beijing, China

- Designed and developed vision-language models to generate descriptions for un-classified videos.

UCLA Prof. Bolei Zhou's Group (Python, Machine Learning, RL)

2022.03 – 2024.9

Researcher - Prof Bolei Zhou's Lab

Los Angeles, CA

- Proposed a benchmark for embodied scene understanding of vision-language models. Provided a 2.7 M dataset related to spatial, visual, dynamic, and safety-critical scene understandings. **Paper submitted to CVPR 2025.**
- Built a compositional simulation platform called MetaUrban for embodied AI research in urban spaces, such as autonomous vehicles. **Paper submitted to ICLR 2025.**
- Developed an improved Human-in-the-loop Reinforcement Learning (RL) method. The trained agent can master driving tasks in **less than 30 minutes. Paper accepted to NeurIPS 2023 Spotlight.**
- Built and tested a platform for large-scale traffic scenario modeling and simulation for RL, IL, and autonomous driving. **Paper accepted to NeurIPS 2023.**
- Implemented a more photorealistic simulation environment for training RL autopilot agents using UE4.

UCLA Center for Neurobehavioral Genetics (Python, R, Data Analysis)

2020.06 – 2022.6

Researcher - Prof Roel Ophoff's Lab

Los Angeles, CA

- Processed and analyzed complex RNA sequence data. Executed comprehensive data analysis to elucidate patterns and insights from the RNA sequences. **Two papers published.**

UCLA Structure-Computer Interaction Lab (C++, Tensorflow, ROS)

2020.06 – 2022.6

- Built a 2D LiDAR **robotic** navigation algorithm for a road identification system, deployed road identification system on low-cost autonomous weed-control robot, using **C++** and **ROS**.

Publication

- Weizhen Wang, **Chenda Duan**, Zhenghao Peng, Yuxin Liu, Bolei Zhou, “*Embodied Scene Understanding for Vision Language Models via MetaVQA*”. Conference on Computer Vision and Pattern Recognition (CVPR) 2025.
- Wayne Wu, Honglin He, Yiran Wang, **Chenda Duan**, Jack He, Zhizheng Liu, Quanyi Li, Bolei Zhou, “*Metaurban: A simulation platform for embodied ai in urban spaces.*”. International Conference on Learning Representations (ICLR) 2025 (Spotlight Paper)
- Zhenghao Peng, Wenjie Mo, **Chenda Duan**, Quanyi Li, Bolei Zhou, “*Learning from Active Human Involvement through Proxy Value Propagation*”. Neural Information Processing Systems (Neurips) 2023 (Spotlight paper).
- Quanyi Li, Zhenghao Peng, Lan Feng, Zhizheng Liu, **Chenda Duan**, Wenjie Mo, Bolei Zhou, “*ScenarioNet: Open-Source Platform for Large-Scale Traffic Scenario Simulation and Modeling*”. Neural Information Processing Systems (Neurips) 2023 (Datasets and Benchmarks Track).
- Tommer Schwarz, Toni Boltz, Kangcheng Hou, Merel Bot, **Chenda Duan**, Loes Olde Loohuis, Marco P. Boks, René S. Kahn, Roel A. Ophoff, Bogdan Pasaniuc, “*Powerful eQTL mapping through low coverage RNA sequencing*”. Human Genetics and Genomics Advances 2022.
- Toni Boltz, Tommer Schwarz, Merel Bot, Kangcheng Hou, Christa Caggiano, Sandra Lapinska, **Chenda Duan**, Marco P Boks, Rene S Kahn, Noah Zaitlen, Bogdan Pasaniuc, Roel Ophoff, “*Cell type deconvolution of bulk blood RNA-Seq to reveal biological insights of neuropsychiatric disorders*”. European Neuropsychopharmacology 2022.

Project

AR Glasses Assistants APP (Java, AR) 2023.3 – 2023.6

- Developed an **AR** Glasses Auxiliary Android App using **Java**, enabling image and sound capture and ensuring a seamless user experience through efficient compression techniques.
- Integrating Google AR core to enable object detection and sound classification.

Acceleration Library on Apple M Chip and NVIDIA GPU (MetalAPI, CUDA) 2023.3 - 2023.6

- Developed a high-performance GEMM operation program that can achieve 6 TFLOPS performance. Using **C++** and **Metal API**.
- Developed an optimized Conv-2d program with **CUDA**, achieving comparable performance with cuBLAS

Gradient-based adversarial attacks against text transformers (Python, NLP) 2022.9 - 2022.12

- Using BARTScore and BLEURT as similarity constraints to perform a gradient-based attack against commonly-used text transformers to explore their potential robustness problems, using **Python**

C++-based Web Server (C++, CI/CD) 2022.3 - 2022.6

- Built a NGINX standard web server with **REST API** capabilities using **C++**. Constructed a **CI/CD Pipeline** on GCP.

Eggendar Online Calendar (React, SQL) 2020.10 - 2020.12

- Developed a Calendar Application with **React** for the front-end and **MySQL** as the backend storage.
- Enabled users to create, import, and manage their schedules with ease and integrated features for automated import of current quarter’s courses and find peers with similar courses.

WebGL-based game (Javascript, WebGL, Computer Graphics) 2020.10 - 2020.12

- Designed and implemented an online basketball-shooting game with advanced graphic features, including shadow, texture, and reflections, using **JavaScript** and **WebGL**.