Chenda Duan

Los Angeles, CA 90024 | 310-254-5864 | dcdduan@gmail.com
linkedin.com/in/chenda-d | github.com/Dadaism6 | chendaduan.com

Education

University of California, Los Angeles (UCLA) **2022.09 – Expected 2024.06**
Master of Science in Computer Science Los Angeles, CA

- **GPA: 4.0/4.0**
- **Teaching Assistant:** Computer Organization, Computer Graphics
- **Core Courses:** Advanced Computer Architecture, Cloud Computing, Data Mining, Adversarial Robustness, 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
Frameworks & Tools: Docker, React, Git, Linux, Cloud (GCP), PyTorch, TensorFlow, ROS

Work / Research Experience

Kuaishou Technology (Python, Pytorch, Computer Vision) **2023.6 – Present**
Vision Algorithm Research Engineer Beijing, China

- Designed and developed vision-language multimodal models with 0.6B parameters.
- Implemented SOTA algorithms to generate descriptions for un-classified magic effects with **Pytorch**.
- Leveraged pre-trained models and fine-tuning techniques to reduce human-labeled data usage by 60%

UCLA Prof. Bolei Zhou's Group (Python, RL) **2022.03 – Present**
Researcher Los Angeles, CA

- Developed an improved Human-in-the-loop Reinforcement Learning (**RL**) method. The trained agent can master driving tasks in **less than 30 minutes** on a home PC, saving more than **90%** of the training time compared to traditional RL methods. Using **PyTorch**. Paper Submitted to **NeurIPS 2023**.
- Built and tested a platform for large-scale traffic scenario modeling and simulation for RL, IL, and autonomous driving. Paper Submitted to **NeurIPS 2023**.
- Implemented a more photorealistic simulation environment for training RL autopilot agents using **UE4**.

UCLA Structure-Computer Interaction Lab (C++, Tensorflow, ROS) **2020.06 – 2022.6**
Researcher Los Angeles, CA

- Built a 2D LiDAR **robotic** navigation algorithm for a road identification system and improved the navigation accuracy by **30%** (compared with multi-Ransac) for the robot while maintaining a low cost.
- Deployed road identification system on low-cost autonomous weed-control robot, using **C++** and **ROS**.
- Created an inverse learning approach to generate the physical parameters (such as diameter) for the **soft robot** and increase the efficiency of collecting the parameters by **90%**, using **TensorFlow**.

UCLA Center for Neurobehavioral Genetics (Python, R, Data Analysis) **2020.06 – 2022.6**
Researcher Los Angeles, CA

- Processed and analyzed complex RNA sequence data, leveraging advanced statistical methods.
- Executed intricate data visualization and comprehensive data analysis using Python and R to elucidate patterns and insights from the RNA sequences. Two paper were published.

Selected Publication

- A paper about Human-in-the-loop Reinforcement Learning (**RL**). In review for NeurIPS 2023.
- 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". In review for NeurIPS 2023.

- 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.
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Project

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

- Developed an **AR** Glasses Auxiliary Andriod App using **Java**, enabling image and sound capture and ensuring a s eamless user experience through efficient compression techniques.
- Integrating Google AR core to enable object detection and sound classification.
- Implemented a robust queuing system with congestion control to facilitate seamless data transfer between AR glasses and smartphones.
- Minimized latency effects through a special design, enhancing the real-time responsiveness of the system.
- Tested its resilience and reliability in real-world conditions for AR glasses.

Accelaration 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, Rest API) **2022.3 - 2022.6**

- Built a NGINX standard web server with **REST API** capabilities using **C++**.
- Constructed a **CI/CD Pipeline** on GCP: Detailed log info, test coverage monitoring using Google Test, and code review using gerrit. Setup a monitor dashboard to record up-time and request latency.

Egglendar 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**.