JIAWEI REN

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EDUCATION

Master of Science | *Computer Science*   Sep. 2024 – Present
University of California, San Diego   San Diego, CA

Bachelor of Engineering | *Software Engineering*   Sep. 2020 – Jul. 2024
Tsinghua University   Beijing, China

PUBLICATIONS

(* equal contribution)

- Xiaokang Ye*, **Jiawei Ren***, Yan Zhuang, Xuhong He, Yiming Liang, Yiqing Yang, Mrinaal Dogra, Xianrui Zhong, Eric Liu, Kevin Benavente, Rajiv Mandya Nagaraju, Dhruv Vivek Sharma, Ziqiao Ma, Tianmin Shu, Zhiting Hu, Lianhui Qin. SimWorld: An Open-ended Simulator for Agents in Physical and Social Worlds *(NeurIPS Main 2025 Spotlight)*.

- Yan Zhuang, **Jiawei Ren***, Xiaokang Ye*, Jianzhi Shen, Ruixuan Zhang, Tianai Yue, Muhammad Faayez, Xuhong He, Xiyan Zhang, Ziqiao Ma, Lianhui Qin, Zhiting Hu, Tianmin Shu. Synthesizing Photorealistic and Dynamic Urban Environments for Multimodal Robot Navigation and Collaboration *(NeurIPS Main 2025)*.

- Gengyuan Shi, Chaokun Wang, Yabin Liu, **Jiawei Ren**. Adaptive and Robust Translation from Natural Language to Multi-model Query Languages *(ACL Main 2025)*.

- Lingjun Mao, **Jiawei Ren**, Jixuan Chen, Ziqiao Ma, Kun Zhou, Lianhui Qin. DeliveryBench: Can Agents Earn Profit in Real World? *(CVPR 2026 Under Review)*.

EXPERIENCE

Research Assistant   Sep. 2024 – Present
Project Leader   UC San Diego

- Led the development of **SimWorld**, a next-generation simulator built on Unreal Engine 5 for training and evaluating embodied and agentic AI systems. The platform supports open-ended realistic world simulation, provides a flexible interface for LLM/VLM agents, and enables diverse physical and social reasoning tasks.
- Designed and implemented two case studies for large-scale multimodal reasoning evaluation: (1) **social reasoning scenarios** involving collaborative and competitive multi-agent delivery tasks, and (2) **physical reasoning scenarios** where agents navigate dynamic urban environments using visual perception under realistic traffic conditions.
- Contributed to the development of a long-horizon embodied benchmark in which agents must operate and improve over time in a simulated city under constraints such as budget and energy. Implemented and evaluated several baseline methods, including in-context learning and supervised fine-tuning.

Research Assistant   Sep. 2023 – Jul. 2024
Core Member   Tsinghua University

- Conducted research on **Multi-Model Query Optimization and AI4DB**, proposing a method to accelerate cross-engine query execution by directly accessing low-level storage layers, reducing query translation overhead.
- Formulated the **Text-to-Multi-Model Query Language (Text-to-MMQL)** task to enable natural language interaction with heterogeneous databases (AQL, ECQL, SQL++). Constructed a benchmark dataset covering multiple query languages for systematic evaluation.
- Fine-tuned a T5 model for multi-model query generation, demonstrating strong generalization across diverse schemas and establishing a foundation for unified semantic understanding across query languages.

Data Engineer Intern Jun. 2023 – Sep. 2023

Intern Data and Intelligence Development Group, JD.com

- Developed a **high-throughput data tracking and management platform** using Spring Boot and MySQL, supporting real-time data ingestion and improving backend scalability and data reliability. The system provided a stable data foundation for downstream analytics and machine learning workloads.
- Designed and implemented **ETL pipelines** for integrating heterogeneous data sources, including data cleaning, transformation, and normalization. These pipelines improved data quality and consistency, supporting feature engineering and model training.

SKILLS

Programming: Python, C/C++, Java, JavaScript
Web development: Vue3, Flutter, Flask, Django, Spring Boot
Database management systems: MySQL, SQLite, PostgreSQL, Neo4J
Operating systems: Windows, Linux
Languages: English (fluent), Chinese (Native)