

RYAN AN

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RESEARCH INTEREST

I work on reinforcement learning and trustworthy AI for physical intelligence. I have expertise in applied reinforcement learning (best paper runner-up, BuildSys'23) and hands-on experiences with language models (RAG project lead @ WDC), ML-based control (ICLR'24, KDD'24), and verification (DAC'24).

EDUCATION

University of California, Merced, advised by Wan Du Jan. 2023 - present
PhD in Electrical Engineering and Computer Science

University of California, Berkeley Aug. 2021 - Dec. 2022
BA in Computer Science (Degree completed in 1.5 years)

PROFESSIONAL EXPERIENCE

PhD Large Language Model Engineer @ Western Digital Corporation Summer 2024
Report to Vice President of Engineering, Yan Li. *Milpitas, CA*

- \circ Designed and completed most implementation and evaluation of an improved retrieval-augmented generation system for industrial knowledge base. Wrote and published research results on arXiv.

Research Affiliate @ Lawrence Berkeley National Laboratory Summer 2023
Hosted by Research Scientist, Bin Wang. *Berkeley, CA*

- \circ Conducted independent research in building energy optimization with applied reinforcement learning.

Founding Engineer @ Subtle Connections Inc. (start-up) May. 2022 - Dec. 2022
Self-employed. *Berkeley, CA*

- \circ Designed and implemented iOS application, hands-on experience with React, Node.js, MangoDB.

Engineering Intern @ Siemens AG Summer 2021
Report to Team Leader, Dingjun Yue. *Beijing, China*

- \circ Implemented navigation algorithm for an autonomous guided vehicle for in-office delivery. Hands-on experience with ROS2, SLAM, and robotic path planning via graph representation and A*.

PUBLICATIONS

Zhiyu An, Xianzhong Ding, Yen-Chun Fu, Cheng-Chung Chu, Yan Li, Wan Du. (2024). **Golden-Retriever: High-Fidelity Agentic Retrieval Augmented Generation for Industrial Knowledge Base.** arXiv.

Yuning Chen, Kang Yang, Zhiyu An, Brady Holder, Luke Paloutzian, Khaled Bali, Wan Du. (2024). **MARLP: Time-series Forecasting Control for Agricultural Managed Aquifer Recharge.** ACM SIGKDD.

Zhiyu An, Xianzhong Ding, Wan Du. (2024). **Go Beyond Black-box Policies: Rethinking the Design of Learning Agent for Interpretable and Verifiable HVAC Control.** Design Automation Conference (DAC).

Zhiyu An, Xianzhong Ding, Wan Du. (2024). **Reward Bound for Behavioral Guarantee of Model-based Planning Agents.** International Conference on Learning Representations (ICLR).

Zhiyu An, Xianzhong Ding, Arya Rathee, Wan Du. (2023). **CLUE: Safe Model-Based RL HVAC Control Using Epistemic Uncertainty Estimation.** The ACM International Conference on Energy-Efficient Buildings, Cities, and Transportation (BuildSys). **Best Paper Award Runner-Up (Top 2.5%)**

Zhiyu An, Xianzhong Ding, Wan Du. (2023). **Data Efficient HVAC Control using Gaussian Process-based Reinforcement Learning.** The ACM Conference on Embedded Networked Sensor Systems (SenSys), Poster.

ACADEMIC SERVICES

Program Committee Member	Trustworthy Machine Learning Workshop @ CIKM 2024
Reviewer	IEEE Transactions on Network Science and Engineering 2024
Reviewer	Data-Centric Engineering, Cambridge University Press 2024
External Reviewer	ACM SenSys 2023

OUTREACH

Speaker Selection Committee Member	TEDx @ UC Merced 2023
Judge	NASA Space Apps Challenge Hackathon 2023
Problem Writer	Berkeley Math Tournament 2022
Volunteer	TEDx @ Berkeley 2022

HONORS AND AWARDS

- BuildSys Best Paper Award Runner-Up, 2023
- Beijing Aidi School Valedictorian, 2021
- Beijing Aidi School Full-Tuition Scholarship, 2019 - 2021
- Australian Science Olympiad - Chemistry (Gold Medal), 2019
- Australian Science Olympiad - Chemistry (Gold Medal), 2018
- Australian Mathematics Competition (High Distinction Top 3%), 2017

REFERENCE

Wan Du , Associate Professor @ UC Merced	Email: wdu3@ucmerced.edu
Yan Li , Vice President of Engineering @ Western Digital Corporation	Email: yan.li@wdc.com