Changling Li

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Peter-Debye-Weg 13 8049, Zurich, Switzerland

EDUCATION BACKGROUND

ETH Zurich 09/2022 – Present
Master of Science in Computer Science, MSc
- Major: Machine Intelligence; Minor: Theoretical Computer science

Colby College 09/2018 – 05/2022
Bachelor of Arts, Physics and Computer Science with Honors
- Overall GPA: **3.99**/4
- Awards and Honors：Distinction in both majors; Magna Cum Laude; Phi Beta Kappa; Sigma Pi Sigma; **UWC Davis Scholar**; Dean's List F'18, S'19, F'19, F'21 (2020 and S'21 - cancelled due to COVID-19)

Li Po Chun United World College 09/2016 – 06/2018
International Baccalaureate Bilingual Diploma : 41/45

PUBLICATIONS

1. **Changling Li**, Ying Li, "Scaling up Energy-Aware Multi-Agent Reinforcement Learning for Mission-Oriented Drone Networks with Individual Reward." (Accepted to IEEE Internet of Things Journal 2024).
2. **Changling Li**, Zhang-Wei Hong, Pulkit Agrawal, Divyansh Garg, and Joni Pajarinen. "ROER: Regularized Optimal Experience Replay." Reinforcement Learning Journal, vol. 4, 2024, pp. 1598–1618.
3. Ying Li, **Changling Li**, Jiyao Chen, and Christine Roinou. "Energy-aware multi-agent reinforcement learning for collaborative execution in mission-oriented drone networks." In 2022 International Conference on Computer Communications and Networks (ICCCN), pp. 1–9. IEEE, 2022.

RESEARCH EXPERIENCES

Robot Morphology Design Automation
Supervisor: Zhang-Wei Hong & Prof. Joni Pajarinen, Massachusetts Institute of Technology 08/2024 – Present
- Implemented overall generation and evaluation workflow.

Regularized Optimal Experience Replay for Deep Reinforcement Learning
Supervisor: Zhang-Wei Hong & Prof. Pulkit Agrawal , Massachusetts Institute of Technology 08/2023 – 04/2024
- Converted TD-error based experience replay as occupancy optimization and derived theoretical formulation.
- Conducted large scale evaluation for empirical proof and compared with baselines using JAX implementation.
- Conference paper was accepted by RLC and presented in August 2024.

Towards a Ethical Framework to Resolve Conflicts in Multi-Agent Systems
Supervisor: Prof. Stacy A. Doore, Colby College 02/2022 – 08/2022
- Reviewed related literature and studied various ethical theories.
- Developed a framework that incorporates human-in-the-loop and ethical judgment for conflict resolution in MAS.
- Created a simulation case of smart city and evaluated the framework on the case study.

Multi-Agent reinforcement learning for collaborative task execution in mission-oriented Drone Networks
Supervisor: Prof. Ying Li, Colby College 01/2021 – 02/2022
- Created a scalable simulation environment for drone networks based on OpenAI gym.
- Created DQN-based MARL framework with both shared and individual rewards for credit assignment exploration.
- Presented academic poster at 2021 Colby College Undergraduate Research Retreat.
- Conference paper was accepted by ICCCN and presented in July 2022.
- Journal paper was accepted by IEEE Internet of Things Journal in 2024.

TEACHING EXPERIENCES

Department of Computer Science, Colby College 09/2019 – 05/2022
Teaching Assistant
- Courses include: CS 353 Interactive System; CS 251 Data Analysis and Visualization; CS 231 Data Structure and Algorithm; CS 152 Computational Thinking: Science; CS 151 Computational Thinking: Visual Media.

Department of Physics and Astronomy, Colby College 09/2019 – 05/2021
Teaching Assistant
- Courses include: PH 241 Modern Physics I; PH 242 Modern Physics II.

SERVICES

- 3D Printer Instructor for WatervilleCreates! 09/2021 – 05/2022
- Co-leader and Logistician for The Bridge (LGBTQIA+) Club of Colby College 02/2019 – 09/2021
- Co-leader and Data Analyst for Coral Monitoring of Li Po Chun UWC 09/2016 – 06/2018