Li Ding

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SUMMARY My research focus is optimization algorithms for large models and AI agents, with particular interests in open-ended generative models, safe reinforcement learning, and human-AI alignment.

EDUCATION

University of Massachusetts Amherst Amherst, MA
Ph.D. in Computer Science 2020.9 - (expected) 2024.8
- Advisor & Mentors (UMass CS): Prof. Lee Spector, Prof. Scott Niekum, Prof. Subhransu Maji.
- Collaborators: Prof. Jeff Clune (UBC, DeepMind), Joel Lehman (Stability AI), Masrour Zoghi (Google).

Massachusetts Institute of Technology Cambridge, MA
Graduate Study in EECS (non-degree) 2019.9 - 2020.1

University of Rochester Rochester, NY
M.S. in Data Science 2016.6 - 2017.5
- Advisor: Prof. Chenliang Xu.

WORK EXPERIENCE

Massachusetts Institute of Technology Cambridge, MA
Research Affiliate 2020.7 - 2021.6
Research Engineer 2017.9 - 2020.6
- Deep learning for driving scene perception and driver monitoring systems.
- PIs: Lex Fridman & Bryan Reimer.

INTERNSHIP

Google US Remote
Research Intern 2023.6 - 2023.9
- Meta-optimization for knowledge distillation.
- Hosts: Masrour Zoghi & Maryam Karimzadehgan.

Meta Burlingame, CA
Research Scientist Intern 2022.5 - 2022.8
- Image segmentation for AR/VR.
- Hosts: Wenliang Zhao & Hang Zhang.

SELECTED PUBLICATIONS

- L. Ding, J. Zhang, J. Clune, L. Spector, and J. Lehman, "Quality diversity through human feedback: Towards open-ended diversity-driven optimization," in *International Conference on Machine Learning (**ICML**)*, 2024
- L. Ding, M. Zoghi, G. Tennenholtz, and M. Karimzadehgan, "Ever evolving evaluator: Towards flexible and reliable meta-optimization for knowledge distillation," in ***NeurIPS**: Workshop on Adaptive Experimental Design and Active Learning in the Real World*, 2023
- L. Ding, E. Pantridge, and L. Spector, "Probabilistic lexicase selection," in *Genetic and Evolutionary Computation Conference (**GECCO**)*, 2023
- L. Ding, J. Terwilliger, A. Parab, M. Wang, L. Fridman, B. Mehler, and B. Reimer, "CLERA: A unified model for joint cognitive load and eye region analysis in the wild," *ACM Transactions on Computer-Human Interaction (**TOCHI**)*, 2023
- L. Ding and L. Spector, "Optimizing neural networks with gradient lexicase selection," in *International Conference on Learning Representations (**ICLR**)*, 2022

- L. Ding, J. Terwilliger, R. Sherony, B. Reimer, and L. Fridman, "Value of temporal dynamics information in driving scene segmentation," *IEEE Transactions on Intelligent Vehicles (**T-IV**)*, 2021
- L. Fridman, L. Ding, B. Jenik, and B. Reimer, "Arguing machines: Human supervision of black box AI systems that make life-critical decisions," in ***CVPR** Workshops*, 2019
- L. Ding and C. Xu, "Weakly-supervised action segmentation with iterative soft boundary assignment," in *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2018
- L. Fridman, H. Schmidt, J. Terwilliger, and L. Ding, "Human interaction with deep reinforcement learning agents in virtual reality," in ***NeurIPS**: Deep Reinforcement Learning Workshop*, 2018

Funding, Honors, and Awards

Conference Travel Scholarship, *Google*. 2023
SOAR (Supporting Open Access Research) Fund, *UMass Amherst*. 2023
4th Place (among 150 teams, top 3%), *MIT Miniplaces Challenge*. 2019
Graduate Tuition Scholarship, *University of Rochester*. 2016
Meritorious Winner (top 5%), *COMAP's Mathematical Contest In Modeling*. 2015

Teaching

University of Massachusetts Amherst

- TA for COMPSCI 230: Computer Systems Principles. 2021

Massachusetts Institute of Technology

- TA for 6.S094: Deep Learning for Self-Driving Cars. 2018 - 2019
- TA for 6.S093: Human-Centered Artificial Intelligence. 2019
- TA for 6.S099: Artificial General Intelligence. 2018
- Co-instructor (w/ Tom Bertalan) for MIT Robocar Workshop. 2018

Academic Services

University of Massachusetts Amherst

- Ph.D. Admissions Committee (Manning College of Information & Computer Sciences) 2024

Conference Reviewer / Program Committee

- International Conference on Learning Representations (ICLR) 2024
- Conference on Neural Information Processing Systems (NeurIPS) 2023
- International Conference on Computer Vision (ICCV) 2023
- Conference on Computer Vision and Pattern Recognition (CVPR) 2023 - 2024
- European Conference on Computer Vision (ECCV) 2024

Journal Reviewer

- IEEE Transactions on Intelligent Vehicles
- Quantum Machine Intelligence
- Pattern Recognition

Open Source Projects

- `google-research/ev3`: Meta-learning optimization in JAX.
- `facebookresearch/d2go`: Efficient model training and deployment on mobile platforms.
- `pyribs`: An open-source library for quality diversity optimization.
- `mit-deep-learning`: Tutorials and coding assignments for MIT Deep Learning courses (9k+ stars).
- `MIT AI Podcast`: An open-access podcast hosted by Lex Fridman (now the *Lex Fridman Podcast*, ranked #1 on Apple Podcasts in the technology category).

Skills

Python, C/C++, JavaScript, PyTorch, JAX, Tensorflow, Git.