Li Ding

liding256@gmail.com Mountain View, CA https://liding.info

Summary

I work on post-training for the Gemini and Gemma models, including tuning and runtime optimization. I am interested in optimization (especially exploration-driven methods) for agent learning and adaptation in open-ended environments.

Education

University of Massachusetts Amherst
Ph.D. in Computer Science 2020 - 2024
- Committee: Lee Spector (Chair), Scott Niekum, Subhransu Maji, Jeff Clune
- Dissertation: "Optimization with intrinsic diversity: Towards generalizable, safe, and open-ended learning"

Massachusetts Institute of Technology
Graduate Study in EECS (non-degree) 2019 - 2020

University of Rochester
M.S. in Computational Science 2016 - 2017
- Advisor: Chenliang Xu

Work Experience

Google
ML Engineer 2024 - present
- Worked on Gemini post-training, including fine-tuning, alignment, runtime optimization, compatibility, scaling, and quality/safety benchmarks.
- Conducted research on novel methods for efficient multi-task LLM agent adaptation.
- Built Gemini/Gemma models in PyTorch with efficient inference and fine-tuning capabilities, integrated with popular open-source libraries.

Massachusetts Institute of Technology
Research Engineer 2017 - 2020
- Conducted research on deep learning algorithms for video scene segmentation, proposed MIT DriveSeg dataset.
- Developed a multitask framework for eye dynamics and cognitive load assessment.

Selected Publications

Google Scholar

Quality Diversity through Human Feedback: Towards Open-Ended Diversity-Driven Optimization
Li Ding, Jenny Zhang, Jeff Clune, Lee Spector, Joel Lehman
International Conference on Machine Learning 2024 *ICML 2024*
(Also Spotlight at NeurIPS 2023: Agent Learning in Open-Endedness Workshop)
- QDHF learns diversity metrics from human feedback and optimizes exploration of novel solutions, enhancing task-solving of RL agents and creativity of generative models.

Pareto-Optimal Learning from Preferences with Hidden Context
Ryan Bahlous-Boldi, Li Ding, Lee Spector, Scott Niekum
Reinforcement Learning Conference 2025 *RLC 2025*
- POPL learns Pareto-optimal policies/rewards in RLHF, catering diverse group preferences without needing group labels, thus offers safe and fair alignment of RL agents and LLMs.

Optimizing Neural Networks with Gradient Lexicase Selection
Li Ding, Lee Spector
International Conference on Learning Representations 2022 *ICLR 2022*

Probabilistic Lexicase Selection
Li Ding, Edward Pantridge, Lee Spector
Genetic and Evolutionary Computation Conference 2023 *GECCO 2023*

Value of Temporal Dynamics in Driving Scene Segmentation [MIT DriveSeg Dataset]
Li Ding, Jack Terwilliger, Rini Sherony, Bryan Reimer, Lex Fridman
Transactions on Intelligent Vehicles *T-IV 2021*

Weakly-Supervised Action Segmentation with Iterative Soft Boundary Assignment
Li Ding, Chenliang Xu
Conference on Computer Vision and Pattern Recognition 2018 *CVPR 2018*

Internships

Google Research
Research Intern 2023
- Mentor: Masrour Zoghi. Developed a JAX optimizer for efficient neural architecture search. Paper published in NeurIPS 2023 workshops.

CarperAI (Research Lab at Stability AI)
Student Researcher 2023
- Mentor: Joel Lehman. Developed an RLHF algorithm to enhance the creativity of generative models. Paper published in ICML 2024.

Meta
Research Scientist Intern 2022
- Mentors: Wenliang Zhao & Hang Zhang. Worked on efficient vision transformers architectures and transfer learning methods.

Honors and Awards

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

Teaching

MIT 6.S094: Deep Learning for Self-Driving Cars (Teaching Assistant) 2018 - 2019
MIT Robocar Workshop (Co-instructor w/ Tom Bertalan) 2018

Services

Reviewer for ICLR, NeurIPS, ICML, JMLR, CVPR, ICCV, ECCV, *etc.* 2020 - present
Ph.D. Admissions Committee (UMass Amherst CICS). 2024

Open Source Projects

`google-research/ev3`: a meta-learning and architecture search optimizer in JAX.
- Main contributor for implementation and maintenance.

`pyribs`: an open-source library for diversity-driven optimization.
- Contributed the code, demo, and tutorial for QDHF.

`mit-deep-learning`: MIT Deep Learning Open Courses (10k+ stars).
- Main contributor for tutorials and coding assignments.

`MIT AI Podcast`: now the *Lex Fridman Podcast*, 4M+ subscribers on Youtube.
- Helped search for candidates and prepare interview materials in early episodes.