

Li Ding

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RESEARCH INTERESTS	Evolutionary Machine Learning, Deep Learning, Computer Vision, Human-Centered AI, Genetic and Evolutionary Algorithms, Quantum Computing, Autonomous Driving
EDUCATION	University of Massachusetts Amherst , Amherst, MA <i>Ph.D. in Computer Science</i> 2020.9 - present (AI Track, Advisor: Prof. Lee Spector) Massachusetts Institute of Technology , Cambridge, MA <i>Graduate Study in EECS (non-degree)</i> 2019.9 - 2020.1 University of Rochester , Rochester, NY <i>M.S. in Data Science</i> 2016.6 - 2017.5 Central University of Finance and Economics , Beijing, China <i>B.S. in Statistics</i> 2012.9 - 2016.6
WORK EXPERIENCE	Meta Reality Labs , Burlingame, CA <i>Research Scientist Intern</i> 2022.5 - 2022.8 <ul style="list-style-type: none">• XR Tech team, mentor: Wenliang Zhao• Worked on high-capacity image segmentation for AR/VR applications. University of Massachusetts Amherst , Amherst, MA <i>Research Assistant</i> 2020.9 - present <ul style="list-style-type: none">• Advisor: Prof. Lee Spector• Worked on evolutionary machine learning, explored the application of evolutionary methods in deep learning, optimization, and quantum computing. Massachusetts Institute of Technology , Cambridge, MA <i>Research Affiliate</i> 2020.7 - 2021.6 <i>Research Engineer</i> 2017.9 - 2020.6 <ul style="list-style-type: none">• Advisor: Dr. Lex Fridman and Dr. Bryan Reimer• Worked on autonomous vehicles and human-centered AI, developed deep learning and computer vision algorithms for real-time driving scene perception and driver monitoring systems. University of Rochester , Rochester, NY <i>Research Assistant</i> 2017.5 - 2017.8 <ul style="list-style-type: none">• Advisor: Prof. Chenliang Xu• Worked on weakly-supervised human action recognition in untrimmed videos. PricewaterhouseCoopers , Shanghai, China 2016.1 - 2016.4 <i>Data Scientist Intern</i> <ul style="list-style-type: none">• Worked on statistical machine learning with large-scale insurance data.

- [1] **L. Ding** and L. Spector, “Optimizing neural networks with gradient lexicase selection,” in *International Conference on Learning Representations (ICLR)*, 2022
- [2] **L. Ding**, R. Boldi, T. Helmuth, and L. Spector, “Going faster and hence further with lexicase selection,” in *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO) Companion*, pp. 538–541, 2022
- [3] **L. Ding**, R. Sherony, B. Mehler, and B. Reimer, “Perceptual Evaluation of Driving Scene Segmentation,” in *IEEE Intelligent Vehicles Symposium (IV)*, 2021
- [4] **L. Ding**, M. Glazer, M. Wang, B. Mehler, B. Reimer, and L. Fridman, “MIT-AVT Clustered Driving Scene Dataset: Evaluating Perception Systems in Real-World Naturalistic Driving Scenarios,” in *IEEE Intelligent Vehicles Symposium (IV)*, 2020
- [5] **L. Ding** and C. Xu, “Weakly-Supervised Action Segmentation with Iterative Soft Boundary Assignment,” in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018

JOURNAL

- [1] **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*, 2021
- [2] L. Fridman, D. E. Brown, M. Glazer, W. Angell, S. Dodd, B. Jenik, J. Terwilliger, A. Patsekkin, J. Kindelsberger, **L. Ding**, and S. Seaman, *et al.*, “MIT Advanced Vehicle Technology Study: Large-Scale Naturalistic Driving Study of Driver Behavior and Interaction with Automation,” *IEEE Access*, 2019

WORKSHOP

- [1] **L. Ding** and L. Spector, “Evolutionary quantum architecture search for parametrized quantum circuits,” in *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO) Companion*, pp. 2190–2195, 2022
- [2] **L. Ding**, R. Boldi, T. Helmuth, and L. Spector, “Lexicase selection at scale,” in *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO) Companion*, pp. 2054–2062, 2022
- [3] **L. Ding** and L. Spector, “Evolving Neural Selection with Adaptive Regularization,” in *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO) Companion*, 2021
- [4] L. Fridman, **L. Ding**, B. Jenik, and B. Reimer, “Arguing Machines: Human Supervision of Black Box AI Systems That Make Life-Critical Decisions,” in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2019
- [5] L. Fridman, H. Schmidt, J. Terwilliger, and **L. Ding**, “Human Interaction with Deep Reinforcement Learning Agents in Virtual Reality,” in *Advances in Neural Information Processing Systems (NeurIPS): Deep Reinforcement Learning Workshop*, 2018

TECHNICAL REPORTS

- [1] **L. Ding**, J. Terwilliger, R. Sherony, B. Reimer, and L. Fridman, “MIT DriveSeg Dataset for Dynamic Driving Scene Segmentation,” *IEEE Dataport*, 2020

- [2] **L. Ding** and L. Fridman, “Object as Distribution,” *arXiv preprint arXiv:1907.12929*, 2019
- [3] **L. Ding** and C. Xu, “Tricornet: A Hybrid Temporal Convolutional and Recurrent Network for Video Action Segmentation,” *arXiv preprint arXiv:1705.07818*, 2017

TEACHING EXPERIENCE	<i>University of Massachusetts Amherst</i>	
	• TA, COMPSCI 230: Computer Systems Principles	2021
	<i>Massachusetts Institute of Technology</i>	
	• TA, 6.S094: Deep Learning for Self-Driving Cars	2018 & 2019
	• TA, 6.S093: Human-Centered Artificial Intelligence	2019
	• TA, 6.S099: Artificial General Intelligence	2018
PRESENTATIONS	Presenter, <i>GECCO 2022: Quantum Optimization Workshop</i>	2022.7
	Presenter, <i>GECCO 2022: Workshop on Large-scale Evolutionary Optimization</i>	2022.7
	Invited speaker, <i>UMass Amherst CICS (Autonomous Learning Lab)</i>	2022.3
	Presenter, <i>GECCO 2021: Neuroevolution at Work Workshop</i>	2021.7
	Presenter, <i>IEEE IV 2021</i>	2021.7
	Invited speaker, <i>UMass Amherst ECE (Software System Research Lab)</i>	2021.6
	Invited speaker, <i>Ford Research & Advanced Engineering</i>	2020.11
	Presenter, <i>IEEE IV 2020: Workshop on Naturalistic Driving Data Analytics</i>	2020.10
	Invited speaker, <i>AutoSens 2020</i>	2020.9
	Invited speaker, <i>Affectiva</i>	2020.3
	Invited speaker, <i>Toyota Motor North America</i>	2020.3
	Invited speaker, <i>MIT Advanced Vehicle Technology (AVT) Consortium</i>	2020.2
	Invited speaker, <i>MIT CSAIL (Data Systems Group)</i>	2019.10
HONORS AND AWARDS	SCHOLARSHIPS	
	• Graduate Tuition Scholarship, <i>University of Rochester</i>	2016
	• Excellent Youth of the Year (top 2%), <i>Central Univ. of Finance and Economics</i>	2015
	COMPETITIONS	
	• 4th Place (among 150 teams, top 3%), <i>MIT 6.869 Miniplaces Challenge</i>	2019
	• Bronze Medal (107th of 1972, top 6%), <i>Kaggle Data Science Bowl</i>	2017
	• Meritorious Winner (top 5%), <i>COMAP's Mathematical Contest In Modeling</i>	2015
SERVICES	PROGRAM COMMITTEE	
	• GECCO 2022: Quantum Optimization Workshop	
	REVIEWER	
	• IEEE International Joint Conference on Neural Networks (IJCNN)	2022
	• IEEE Intelligent Vehicles Symposium (IV)	2021
	• British Machine Vision Conference (BMVC)	2020 - 2021
	• ACM Conference on Automotive User Interfaces (AutoUI)	2020
	• IEEE Transactions on Circuits and Systems for Video Technology	2018 - 2020
	• IEEE Access	2018

MISC.

SIDE PROJECTS

- Prepared interview materials for *AI Podcast* with Dr. Lex Fridman (ranked #1 on Apple Podcasts in the technology category, 1M views on Youtube)
- Created tutorials and competitions for *MIT Deep Learning* courses (8k stars on Github)
- Taught a summer/winter workshop at MIT with Dr. Tom Bertalan to high school students on building and programming autonomous robocars

PROGRAMMING AND SOFTWARE

Python, C/C++, JavaScript, PyTorch, Tensorflow, Cirq, Qiskit.