Li Ding

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RESEARCH INTERESTS — Evolutionary Machine Learning, Computer Vision, Human-Centered Computing

EDUCATION

University of Massachusetts Amherst, Amherst, MA — 2020.9 - present
Ph.D. in Computer Science

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

University of Rochester, Rochester, NY — 2016.6 - 2017.5
M.S. in Data Science

Central University of Finance and Economics, Beijing, China — 2012.9 - 2016.6
B.S. in Statistics

RESEARCH EXPERIENCE

University of Massachusetts Amherst, Amherst, MA — 2020.9 - present
Research Assistant
- Advisor: Prof. Lee Spector
- Work on evolutionary machine learning, explore the usage of selection methods in the context of deep learning and optimization.

Massachusetts Institute of Technology, Cambridge, MA — 2020.7 - present
Research Affiliate
- Advisor: Dr. Bryan Reimer
- Work on autonomous vehicles and driver monitoring systems, develop novel methods for driver glance detection and cognitive load estimation.

Massachusetts Institute of Technology, Cambridge, MA — 2017.9 - 2020.6
Research Engineer
- 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 — 2017.5 - 2017.8
Research Associate
- Advisor: Prof. Chenliang Xu
- Worked on weakly-supervised action recognition in untrimmed videos.

PUBLICATIONS

PEER-REVIEWED

[1] **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 *2020 IEEE Intelligent Vehicles Symposium (IV)*, pp. 232–237, IEEE, 2020

[2] 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/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2019

[3] L. Fridman, D. E. Brown, M. Glazer, W. Angell, S. Dodd, B. Jenik, J. Terwilliger, A. Patsekin, 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*, vol. 7, pp. 102021–102038, 2019

[4] **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

[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

Preprints

[1] **L. Ding** and L. Fridman, "Object as Distribution," *arXiv preprint arXiv:1907.12929*, 2020

[2] **L. Ding**, J. Terwilliger, R. Sherony, B. Reimer, and L. Fridman, "Value of Temporal Dynamics Information in Driving Scene Segmentation,", *arXiv preprint arXiv:1904.00758*, 2019

Technical Reports

[1] **L. Ding**, M. Glazer, J. Terwilliger, B. Reimer, and L. Fridman, "MIT DriveSeg (Semi-auto) Dataset: Large-scale Semi-automated Annotation of Semantic Driving Scenes," 2020

[2] **L. Ding**, J. Terwilliger, R. Sherony, B. Reimer, and L. Fridman, "MIT DriveSeg (Manual) Dataset for Dynamic Driving Scene Segmentation," 2020

[3] **L. Ding** and C. Xu, "Tricornet: A Hybrid Temporal Convolutional and Recurrent Network for Video Action Segmentation," *arXiv preprint arXiv:1705.07818*, 2017

Presentations

MIT-AVT Study: Working with Real-World Naturalistic Driving Data at Scale — 2020.11
Invited Talk at Ford Research & Advanced Engineering

Evaluating Perception Systems in Real-World Naturalistic Driving Scenarios — 2020.10
Oral presentation at IEEE IV 2020: Workshop on Naturalistic Driving Data Analytics

MIT DriveSeg Dataset for Dynamic Driving Scene Segmentation — 2020.9
Invited talk at AutoSens 2020

Data-Driven Computer Vision Research for Human-Centered Autonomous Vehicles — 2019.10
Invited talk at MIT CSAIL (Data Systems Group)

Weakly-Supervised Action Segmentation with Iterative Soft Boundary Assignment — 2018.6
Poster presentation at CVPR 2018

Human Action Recognition with Deep Convolutional Neural Networks — 2017.5
Poster presentation at Center for Integrated Research Computing, University of Rochester

Honors and Awards

Scholarships

- Half-Tuition Scholarship, *University of Rochester* — 2016
- Excellent Youth of the Year (top 2%), *Central Univ. of Finance and Economics* — 2015

Competitions

- 4th Place (among 150 teams, top 3%), *MIT 6.869 Miniplaces Challenge* — 2019
- Bronze Medal (107th of 1972, top 6%), *Kaggle Data Science Bowl* — 2017
- Meritorious Winner (top 5%), *COMAP's Mathematical Contest In Modeling* — 2015

Services

Reviewer

- British Machine Vision Conference (BMVC) 2020
- ACM Conference on Automotive User Interfaces (AutoUI) 2020
- IEEE Transactions on Circuits and Systems for Video Technology 2018 - 2020
- IEEE Access 2018

Teaching Assistant

- MIT 6.S094: Deep Learning for Self-Driving Cars Winter 2018 & 2019
- MIT 6.S093: Human-Centered Artificial Intelligence Winter 2019
- MIT 6.S099: Artificial General Intelligence Winter 2018

Misc.

Side Projects

- Created tutorials and competitions for *MIT Deep Learning* courses (8k stars on Github)
- Prepared interview materials for *AI Podcast* with Lex Fridman (ranked #1 on Apple Podcasts in the technology category, 1M views on Youtube)
- 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++, JavaScript, PyTorch, TensorFlow, Keras, TensorFlow.js.