PEIZHAO LI

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EDUCATION

Brandeis University, Waltham, Massachusetts, United States — Aug. 2019 - Expected May 2024
Doctor of Philosophy-Ph.D., Computer Science
Advisor: Professor Hongfu Liu

Beihang University, Beijing, China — Sept. 2015 - Jun. 2019
Bachelor of Science, Electronic and Information Engineering
Advisor: Professor Xiantong Zhen

RESEARCH INTERESTS

Artificial Intelligence and **Machine Learning** with particular interests in **Responsible AI**, **Machine Learning Fairness**, and relevant computational tools to detect and correct bias in models and data.

Had experience in **Computer Vision** and **Natural Language Processing** such as Document Analysis with Multi-modal Learning, Automatic Code Editing, and Object Recognition with radar and visual perception.

RESEARCH AND INDUSTRY EXPERIENCE

Harvard University — Jan. 2023 - May 2023
Research Fellow, Host: Prof. Yiling Chen — *Cambridge, Massachusetts*

· Conducted research on mechanism design, information elicitation, and peer prediction.
· Related multi-task peer prediction with multi-view contrastive learning.

Mitsubishi Electric Research Laboratories — May 2022 - Nov. 2022
Research Intern, Host: Dr. Pu (Perry) Wang — *Cambridge, Massachusetts*

· Conducted research on object recognition with multi-view radar frequency imaging.
· Proposed a deep learning framework for object segmentation using multi-view radar frequency images.
· Assisted with in-door radar data collection and session organization.

Mitsubishi Electric Research Laboratories — May 2021 - Aug. 2021
Research Intern, Host: Dr. Pu (Perry) Wang — *Cambridge, Massachusetts (Remote)*

· Conducted research on object detection and tracking using automotive radar.
· Proposed a deep learning framework for radar autonomous driving enhanced by temporal information.
· Prepared and submitted a research paper, which got accepted to CVPR 2022.

NEC Laboratories America — Feb. 2021 - May 2021
Research Intern, Mentor: Dr. Xuchao Zhang — *Princeton, New Jersey (Remote)*

· Conducted research on automatic and few-shot computer source code editing using natural language processing.
· Proposed a strategy for learning from few code snippets, and achieved good performance in code refactoring.
· Prepared and submitted a research paper, which got accepted to ICLRW 2022.

Adobe Research — May 2020 - Nov. 2020
Research Intern, Primary Mentor: Dr. Jiuxiang Gu — *College Park, Maryland (Remote)*

· Conducted research on document representation learning, entity recognition, and document classification.
· Proposed a multi-modal pre-training framework and achieved good performance on various downstream tasks.
· Prepared and submitted a research paper, which got accepted to CVPR 2021.

Beihang University Sept. 2017 - Mar. 2019
Undergraduate Research Assistant, Advisor: Prof. Xiantong Zhen *Beijing, China*

· Conducted research on computer vision applications including facial keypoint detection and object tracking.
· Prepared and submitted three research papers, which got accepted to ICIP 2019 and WACV 2019.
· Worked on railway surveillance system with applications in video object detection and tracking.

PUBLICATIONS

Under Review Papers

[U1]. 'What Data Benefits My Classifier?' Enhancing Model Performance and Interpretability through Influence-Based Data Selection.

[U2]. Dual Node and Edge Fairness-Aware Graph Partition.

[U3]. Applications of AlphaFold beyond Protein Structure Prediction.

Conference Publications

[C1]. **Peizhao Li**, Ethan Xia, Hongfu Liu. Learning Antidote Data to Individual Unfairness. *International Conference on Machine Learning* (ICML), 2023.

[C2]. Anshuman Chhabra, **Peizhao Li**, Prasant Mohapatra, Hongfu Liu. Robust Fair Clustering: A Novel Fairness Attack and Defense Framework. *International Conference on Learning Representations* (ICLR), 2023.

[C3]. Zizhang Chen, **Peizhao Li**, Hongfu Liu, Pengyu Hong. Characterizing the Influence of Graph Elements. *International Conference on Learning Representations* (ICLR), 2023.

[C4]. **Peizhao Li**, Hongfu Liu. Achieving Fairness at No Utility Cost via Data Reweighing with Influence. *International Conference on Machine Learning* (ICML), 2022.

[C5]. **Peizhao Li**, Xuchao Zhang, Ziyu Yao, Wei Cheng, Haifeng Chen, Hongfu Liu. Code Editing from Few Exemplars by Adaptive Multi-Extent Composition. *International Conference of Learning Representations Deep Learning For Code Workshop* (ICLRW), 2022.

[C6]. **Peizhao Li**, Pu Wang, Karl Berntorp, Hongfu Liu. Exploiting Temporal Relations on Radar Perception for Autonomous Driving. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (CVPR), 2022.

[C7]. Hanyu Song, **Peizhao Li**, Hongfu Liu. Deep Clustering-based Fair Outlier Detection. *ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (KDD), 2021.

[C8]. **Peizhao Li**, Jiuxiang Gu, Jason kuen, Vlad Morariu, Handong Zhao, Rajiv Jain, Varun Manjunatha, Hongfu Liu. SelfDoc: Self-Supervised Document Representation Learning. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (CVPR), 2021.

[C9]. **Peizhao Li**, Yifei Wang, Han Zhao, Pengyu Hong, Hongfu Liu. Dyadic Fairness: Exploring and Mitigating Bias in Graph Connections. *In Proceedings of the 9th International Conference on Learning Representations* (ICLR), 2021.

[C10]. **Peizhao Li**, Han Zhao, Hongfu Liu. Deep Fair Clustering for Visual Learning. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (CVPR), 2020.

[C11]. **Peizhao Li**, Yanjing Li, Xiaolong Jiang, Xiantong Zhen. Two-Stream Multi-Task Network for Fashion Recognition. *In Proceeding of IEEE International Conference on Image Processing* (ICIP), 2019.

[C12]. **Peizhao Li***, Anran Zhang*, Lei Yue, Xiantong Zhen, Xianbin Cao. Multi-Scale Aggregation Network for Direct Face Alignment. *In Proceeding of IEEE Winter Conference on Applications of Computer Vision* (WACV), 2019. (* equal contribution)

[C13]. Xiaolong Jiang, **Peizhao Li**, Xiantong Zhen, Xianbin Cao. Model-Free Tracking with Deep Appearance and Motion Features Integration. *In Proceeding of IEEE Winter Conference on Applications of Computer Vision* (WACV), 2019.

Preprints

[P1]. **Peizhao Li**, Zhengming Ding, Hongfu Liu. Mining Label Distribution Drift in Unsupervised Domain Adaptation. *arXiv preprint: 2006.09565*, 2020.

[P2]. Xiaolong Jiang*, **Peizhao Li***, Yanjing Li, Xiantong Zhen, Xianbin Cao. Graph Neural Based End-to-end Data Association Framework for Online Multiple-Object Tracking. *arXiv preprint:1907.05315*, 2019. (* equal contribution)

OPEN-SOURCE CONTRIBUTION

FairPy: A Python Library for Machine Learning Fairness — Mar. 2023 - Now

Awesome Machine Learning Fairness: A Paper and Resource List — Jul. 2021 - Now

TEACHING EXPERIENCE

Computer Vision — Jan. 2023 - May 2023
Teaching Assistant, with Prof. Hongfu Liu

Marketing Analytics — Sept. 2021 - Dec. 2021
Teaching Assistant, with Prof. Xavi Vidal-Berastain

Discrete Structures — Sept. 2021 - Dec. 2021
Teaching Assistant, with Prof. Timothy Hickey

Computer Vision — Jan. 2021 - May 2021
Teaching Assistant, with Prof. Hongfu Liu

Advanced Topics in Graph Mining — Aug. 2020 - Nov. 2020
Teaching Assistant, with Prof. Chuxu Zhang

Topics in Natural Language Processing — Feb. 2020 - May 2020
Teaching Assistant, with Prof. Constantine Lignos

Data Structures and the Fundamentals of Computing — Aug. 2020 - Dec. 2020
Teaching Assistant, with Prof. Hongfu Liu

PROFESSIONAL SERVICES

Reviewed over 80 conference / journal manuscripts

Conference Reviewer

· Conference on Neural Information Processing Systems (NeurIPS), 2022, 2023
· International Joint Conference on Artificial Intelligence (IJCAI), 2023
· European Conference on Computer Vision (ECCV), 2022

· International Conference on Computer Vision (ICCV), 2023
· IEEE International Conference on Data Mining (ICDM), 2022, 2023
· ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2022, 2023
· IJCNN at IEEE World Congress on Computational Intelligence (IJCNN), 2022
· Conference on Uncertainty in Artificial Intelligence (UAI), 2022, 2023
· International Conference on Machine Learning (ICML), 2022, 2023
· IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022, 2023
· International Conference on Learning Representations (ICLR), 2022, 2023
· AAAI Conference on Artificial Intelligence (AAAI), 2022, 2023
· International Conference on Advanced Communications and Computation (INFOCOMP), 2021

Journal Reviewer

· IEEE Transactions on Circuits and Systems for Video Technology
· IEEE Transactions on Multimedia
· IEEE Transactions on Artificial Intelligence
· IEEE Computational Intelligence Magazine
· IEEE Access
· Machine Learning
· Big Data
· Neurocomputing
· Neural Networks
· Journal of Combinatorial Optimization
· Journal of Electronic Imaging
· IET Image Processing
· IET Computer Vision

Others

· External Review Panel, Michtom School of Computer Science, Brandeis University

ACADEMIC TALKS

An Introduction to Fair Machine Learning

· Guest lecture on COSI/ECO-148B: Introduction to Machine Learning, Brandeis University — Apr. 2023
· Guest lecture on BUS/FIN-241A: Machine Learning for Business, Brandeis University — Apr. 2023
· Guest lecture on COSI-159A: Computer Vision, Brandeis University — Apr. 2023
· GSAS Computer Science Alumni Celebration, Brandeis University — Mar. 2023
· MRSEC-Waltham High School Pizza Talk Series, Waltham High School — Sept. 2022
· Brandeis Precollege Academic Immersion Program, Brandeis University — Mar. 2022

Releasing the Tradoff in Algorithmic Fairness

· International Business School Ph.D. Seminar, Brandeis University — Mar. 2022
· Computer Science Seminar, Brandeis University — Feb. 2022

Code Editing from Few Exemplars by Adaptive Multi-Extend Composition

· Data Science and System Security Department, NEC Laboratories America — Jul. 2021

Two-Stream Multi-Task Network for Fashion Recognition

· IEEE International Conference on Image Processing — Sept. 2019

Multi-Scale Aggregation Network for Direct Face Alignment

· IEEE Winter Conference on Applications of Computer Vision Jan. 2019

AWARDS

Meta Research Ph.D. Fellowship Finalist (83/3200+)	2023
GSAS Career Fellowship, Brandeis University	2023
Dissertation Research Award, Brandeis University	2022
COSI Outstanding Research Award, Brandeis University	2022
Library's Research Excellence Prize, Brandeis University	2022
Alfred Schonwalter Summer Research Fellowship, Brandeis University	2022
ICML Complimentary Registration	2022
CVPR Travel Grant Award	2022
CVPR Virtual Registration Waiver Award	2022
Ph.D. Fellowship, Brandeis University	2019 - 2023
Academic Excellence Fellowship, Beihang University	2017 - 2018
Competition Excellence Fellowship, Beihang University	2017
Second Prize in National Undergraduate Electronics Design, Beijing	2017
Outstanding Volunteer Award, Beihang University	2017

TECHNICAL SKILLS

Programming Languages	Python, MATLAB, Shell script, Java, LaTeX, HTML
Computational Toolkits	Scikit-Learn, CPLEX Optimizer, Gurobi
Deep Learning Frameworks	PyTorch, JAX, Tensorflow, Keras, T5X, MMCV, Detectron2
Languages	Fluent in English and Mandarin

Latest Update: May 2023