Fengchun Qiao

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Research Interests

My research interests are machine learning, deep learning, and computer vision. Currently, I focus on developing robust and explainable methods for Out-of-Distribution (OOD) generalization.

Education

University of Delaware 2020.02 – Present
- Ph.D. Computer and Information Sciences. Advisor: Prof. Xi Peng

Institute of Software, Chinese Academy of Sciences 2016.09 – 2019.06
- M.Eng. Computer Application Technology. Advisor: Prof. Hui Chen

Beijing Forestry University 2012.09 – 2016.06
- B.Eng. Electronic and Information Technology (GPA: 90.8/100, Ranking: 1/52)

Projects & Publications

Out-of-Distribution Generalization

- We proposed to leverage the graph structure of distributions to address OOD Generalization.
  Fengchun Qiao and Xi Peng. *Graph-Relational Distributionally Robust Optimization.* NeurIPS Workshop on Distribution Shifts, 2022. [PDF]
- We proposed uncertainty-guided augmentation for OOD Generalization.
  Fengchun Qiao, Xi Peng. *Uncertainty-guided Model Generalization to Unseen Domains.* Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021. [PDF]
  Xi Peng, **Fengchun Qiao**, and Long Zhao. *Out-of-Domain Generalization from a Single Source: An Uncertainty Quantification Approach.* IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2022.
- We studied a new problem called single domain generalization.
  Fengchun Qiao, Long Zhao, and Xi Peng. *Learning to Learn Single Domain Generalization.* Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020. [PDF]

Data Synthesis via Adversarial Generative Model

- We proposed a geometry guided GAN to transfer facial expressions across different persons.
  Fengchun Qiao, Naiming Yao, Zirui Jiao, Zhihao Li, Hui Chen, Hongan Wang. *Geometry-Contrastive Generative Adversarial Network for Facial Expression Synthesis.* arXiv preprint arXiv:1802.01822. [PDF]
  Fengchun Qiao, Naiming Yao, Zirui Jiao, Zhihao Li, Hui Chen, Hongan Wang. *Emotional facial expression transfer from a single image via generative adversarial nets.* The 31st International Conference on Computer Animation and Social Agents (CASA), 2018. [PDF]

Human-Centered Visual Analysis

- We proposed an ensemble method for video-based facial expression recognition in the wild.
  Zirui Jiao, **Fengchun Qiao**, Naiming Yao, Zhihao Li, Hui Chen, Hongan Wang. *An Ensemble of VGG Networks for Video-Based Facial Expression Recognition.* The First Asian Conference on Affective Computing and Intelligent Interaction (ACII Asia), 2018. [PDF]

- We proposed a context-consistent image completion method for partially-occluded facial expressions. Naiming Yao, Qingpei Guo, **Fengchun Qiao**, Hui Chen, Hongan Wang. *Robust Facial Expression Recognition With Generative Adversarial Networks.* Acta Automatica Sinica. [PDF]

Work Experience

- Applied Scientist Intern, Amazon Web Services AI Lab
  Time: Summer 2021. Mentor: Dr. Gukyeong Kwon
  Topics: A Probabilistic Model for Cross-Modal Retrieval.
- Research Assistant, Institute of Software, Chinese Academy of Sciences
  Time: 2016 - 2019. Advisor: Prof. Hui Chen
  Topics: GAN-based Facial Expression Synthesis.

Teaching

- Fall 2021: Teaching Assistant for CISC 484 (Machine Learning), CISC 621 (Algorithm Design and Analysis).
- Spring 2021: Teaching Assistant for CISC 484/684 (Machine Learning).
- Fall 2020: Teaching Assistant for CISC 481 (Artificial Intelligence), CISC 482 (Introduction to Human-Computer Interaction).

Awards & Honors

- NeurIPS 2022 Top Reviewer Award, 2022
- Outstanding Graduate Student Award, University of Delaware, 2022
- Distinguished Graduate Student Award, University of Delaware, 2021
- National Scholarship for Graduate Students, 2018
- CIKM AnalytiCup 2017 (Ranking: 4/1395), 2017
- KDD CUP 2017 (Ranking: 16/3582), 2017

Professional Service

- Conference reviewer: ICML 2022, NeurIPS 2022, AAAI 2023
- Journal reviewer: TIP/TMM/CVIU/TCSVT