Chengyin Li

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Research Interest

Developing machine learning and deep learning algorithms for real-word problems; Medical image analysis; Trustworthy AI

Education

- **Wayne State University** — Detroit, US
  Ph.D. in Computer Science; ***GPA: 3.95/4.00*** — *Sep 2019 - Present*
- **Wayne State University** — Detroit, US
  Master in Computer Science; ***GPA: 3.95/4.00*** — *Sep 2019 - Dec 2021*
- **University of Chinese Academy of Sciences** — Beijing, China
  M.E. — *Sep 2013 - Jun 2016*
- **Nanjing University of Science and Technology** — Nanjing, China
  B.E. — *Sep 2009 - Jun 2013*

Professional Experience

- **Wayne State University - Computer Science Department** — US, Full-time
  Graduate Research Assistant — *Aug 2019 - Present*
  - Learned and applied deep learning approaches for mid-level computer vision tasks like 2D/3D medical image classification and segmentation
  - Developed deep/machine learning algorithms for addressing real-world problems; Three publications in ECML 2022, Pediatric Research 2022, and BIBM-2020
  - Developed algorithms for Trustworthy AI, particularly in the area of Explainable, Fair, and Robust Deep Neural Networks; Three publications in IJCAI 2022, NeurIPS 2022, abd AdvML workshop at ICML 2022
  - Developed and validated machine learning models to predict severe COVID-19 illness in children; Competed in Pediatric COVID-19 Data Challenge
  - Served as reviewer for conferences: ICML, NeurIPS, AAAI, IJCAI, and MICCAI
- **Henry Ford Health System** — US, Full-time
  Research Assistant — *May 2022 - Present*
  - Developed deep/machine learning algorithms for 2D/3D/4D medical image (CT, MRI) segmentation tasks
  - Developed end-to-end deep 3D CNN-based models for fluence map prediction for prostate radiation therapy
- **Chinese Academy of Sciences Shenzhen Advanced Technology Academey** — China, Full-time
  Student Research Assistant with Prof. Yu Qiao — *Aug 2018 - May 2019*
  - Learned the general logic and deep learning-based approaches for low-level image processing
  - Designed and applied generative adversarial networks (GANs) for image denoising and image super-resolution

Skills

- Proficient with Python, R, JavaScript/HTML/CSS; Familiar with C++, Java, Matlab, and PySpark
- Proficient with deep/machine frameworks: PyTorch, Keras, HuggingFace, Scikit-Learn, and MONAI
- Proficient with version control systems: Git
- Familiar with platforms: Linux, Windows, AWS, and GCP
- Good at: writing, presentation, review, and critical thinking

Honors and Awards

- Graduate Student Professional Travel Award - Nov 2022
- Thomas C. Rumble Fellowship Award, Aug 2019 - May 2020

Publications

- **Chengyin Li**, Zheng Dong, Nathan Fisher, and Dongxiao Zhu. "Coupling User Preference with External Rewards to Enable Driver-centered and Resource-aware EV Charging Recommendation." *ECML PKDD 2022. Oral.*
- **Chengyin Li**, Rhea E. Sullivan, Dongxiao Zhu, and Steven D. Hicks. "Putting the 'mi' in Omics: Discovering miRNA Biomarkers for Pediatric Precision Care." *Pediatric Research 2022.*
- **Chengyin Li**, Yao Qiang, Rafi Lbn Sultan, Hassan Bagher-Ebadian, Prashant Khanduri, Indrin J. Chetty, and Dongxiao Zhu. "FocalUNETR: A Focal Transformer for Boundary-aware Segmentation of CT Images." *MICCAI 2023.*
- Xin Li, **Chengyin Li**, and Dongxiao Zhu. "COVID-MobileXpert: On-Device COVID-19 Screening using Snapshots of Chest X-Ray. " *BIBM 2020.*
- Yao Qiang, **Chengyin Li**, Marco Brocanelli, and Dongxiao Zhu. "Counterfactual Interpolation Augmentation (CIA): A Unifed Approach to Enhance Fairness and Explainability of DNN." *IJCAI 2022. Oral.*
- Yao Qiang, Deng Pan, **Chengyin Li**, Xin Li, and Dongxiao Zhu. "AttCAT: Explaining Transformers via Attentive Class Activation Tokens." *NeurIPS 2022.*
- Xin Li, Yao Qiang, **Chengyin Li**, Sijia Liu, and Dongxiao Zhu. "Saliency Guided Adversarial Training for Tackling Generalization Gap with Applications to Medical Imaging Classification System." *AdvML workshop at ICML 2022.*
- Xin Li, Deng Pan, **Chengyin Li**, Yao Qiang, and Dongxiao Zhu "Negative Flux Aggregation to Estimate Feature Attributions." *IJCAI 2023.*
- Prashant Khanduri, **Chengyin Li**, Rafi Ibn Sultan, Yao Qiang, Joerg Kliewer, and Dongxiao Zhu. "Proximal Composite Optimization for Distributionally Robust Learning." *AdvML workshop at ICML 2023.*
- **Chengyin Li**, Hassan Bagher-Ebadian, Rafi Ibn Sultan, Mohamed Elshaikh, Benjamin Movsas, Dongxiao Zhu, and Indrin J. Chetty. "A New Architecture Combining Convolutional and Transformer-Based Networks for Automatic 3D Multi-Organ Segmentation on CT Images." *Under review of Medical Physics.*
- Yao Qiang, **Chengyin Li**, Prashant Khanduri, and Dongxiao Zhu "Fairness-aware Vision Transformer via Debiased Self-Attention." *Under-review of ICCV 2023.*
- Yao Qiang, **Chengyin Li**, Prashant Khanduri, and Dongxiao Zhu "Interpretability-Aware Vision Transformer." *Under-review of NeurIPS 2023.*
- Prashant Khanduri, **Chengyin Li**, Rafi Ibn Sultan, Yao Qiang, Joerg Kliewer, and Dongxiao Zhu "Interpretability-Aware Vision Transformer." *Under-review of NeurIPS 2023.*