

Shichao Xu

Ph.D. Candidate

Department of Computer Science

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OBJECTIVE

I am a fourth year Ph.D. candidate and aiming at finding a full-time research/engineering intern position.

RESEARCH INTERESTS

Machine/Deep learning, Learning from imperfect data, Computer Vision, Reinforcement learning

SUMMARY

I am a fourth-year Ph.D. candidate in the Computer Science Department at Northwestern University, and my advisor is Prof Qi Zhu. I also work collaboratively with Prof. Xiao Wang, Prof. Zhaoran Wang from Northwestern University, Prof. Yanzhi Wang from Northeastern University, Prof. Zheng O'Neill from Texas A&M University. I received my undergraduate degree from Shanghai Jiao Tong University (ACM Honors Class) in 2018. Previously, I was a research intern in visual computing group at MSRA, under the supervision of Jifeng Dai. I also worked as a research assistant at SJTU BCMI Lab, directed by Prof. Liqing Zhang.

My research interests lie in the field of **Artificial Intelligence** and **Cyber-Physical System**, especially with the topic of **learning from imperfect data**. While deep learning is more and more frequently included as a component of a large complex system with various factors included, many challenges are exposed in actual development and integration. Instead of simply considering AI as a stand-alone software application, we should take more issues into account – **data availability and quality, disturbance and attacks, generalization and adaptation**, etc. And one of our latest works Weak Adaptation Learning which relates to data availability and quality is accepted by ICCV 2021. And our paper Non-Transferable Learning which related to generalization and adaptation also gets a high score (8/8/8) in ICLR 2022.

EDUCATION BACKGROUND

Northwestern University

IL, USA

Ph.D. in Computer Science (GPA: 3.9/4.0)

09/2018-06/2023(*expected*)

Master's degree in Computer Science (GPA: 3.9/4.0)

09/2018-06/2021

Cornell University

NY, USA

Summer School

06/2017-07/2017

ACM Class, Zhiyuan College, Shanghai Jiao Tong University

Shanghai, China

Bachelor of Science in Computer Science (GPA 3.9/4.3)

09/2014-07/2018

RESEARCH EXPERIENCES

Northwestern University

IL, USA

Research Assistant in IDEAS Lab

09/2018-*present*

Shanghai Jiao Tong University

Shanghai, China

Research Assistant in Center for Brain-like Computing and Machine Intelligence

09/2014-07/2018

SELECTED PUBLICATIONS

- Fu Yangyang, Shichao Xu, Qi Zhu, and Zheng O'Neill. "Containerized Framework for Building Control Performance Comparisons: Model Predictive Control vs Deep Reinforcement Learning Control." (2021). *The 8th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys '21)*, 2021
- Lixu Wang*, Shichao Xu*, Ruiqi Xu, Xiao Wang, and Qi Zhu. "Non-Transferable Learning: A New Approach for Model Verification and Authorization." (latest! ICLR 2022, score 8/8/8, currently ranked 15th among all.)
- Shichao Xu, Yangyang Fu, Yixuan Wang, Zheng O'Neill, and Qi Zhu. "Model-assisted Learning-based Framework for Sensor Fault-Tolerant Building HVAC Control." *The 8th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys '21)*, 2021, Coimbra, Portugal (acceptance ratio = 26%)
- Shichao Xu*, Lixu Wang*, Yixuan Wang, and Qi Zhu. "Weak Adaptation Learning--Addressing Cross-domain Data Insufficiency with Weak Annotator." IEEE/CVF International Conference on Computer Vision (ICCV) 2021.
- Lixu Wang, Shichao Xu, Xiao Wang, and Qi Zhu. "Towards Class Imbalance in Federated Learning." *In 35th Conference on Artificial Intelligence (AAAI), A Virtual Conference*, 2021.
- Qi Zhu, Chao Huang, Ruochen Jiao, Shuyue Lan, Hengyi Liang, Xiangguo Liu, Yixuan Wang, Zhilu Wang, Shichao Xu "Safety-Assured Design and Adaptation of Learning-Enabled Autonomous Systems." *Proceedings of the 26th Asia and South Pacific Design Automation Conference (ASP-DAC)*. 2021.
- Yixuan Wang, Chao Huang, Zhilu Wang, Shichao Xu, Zhaoran Wang, Qi Zhu. "Cocktail: Learn a Better Neural Network Controller from Multiple Experts via Adaptive Mixing and Robust Distillation" *2021 58th ACM/IEEE Design Automation Conference (DAC), Virtual Conference*, 2021.
- Rumia Masburah, Rajib Lochan Jana, Ainuddin Khan, Shichao Xu, Shuyue Lan, Soumyajit Dey, Qi Zhu, "Adaptive Learning Based Building Load Prediction for Microgrid Economic Dispatch" Design, Automation & Test in Europe Conference & Exhibition (DATE), 2021
- Shichao Xu, Yixuan Wang, Yanzhi Wang, Zheng O'Neill, and Qi Zhu. "One for Many: Transfer Learning for Building HVAC Control." *In Proceedings of the 7th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, (BuildSys '20)*, 2020.
- Shichao Xu, Shuyue Lan, and Zhu Qi, "MaskPlus: Improving Mask Generation for Instance Segmentation" The IEEE Winter Conference on Applications of Computer Vision (WACV). 2020
- Chao Huang, Shichao Xu, Zhilu Wang, Shuyue Lan, Wenchao Li, and Qi Zhu. "Opportunistic Intermittent Control with Safety Guarantees for Autonomous Systems," *2020 57th ACM/IEEE Design Automation Conference (DAC)*, San Francisco, CA, USA, 2020, pp. 1-6

Skill/Tools

Python(experienced), C/C++(experienced), Pytorch(experienced), Tensorflow(experienced for ver<2.0), Algorithm(experienced), Latex(experienced), Docker(intermediate), Html(intermediate), Git(intermediate).

PROJECT

- DoE Project: [Securing Grid-interactive Efficient Buildings \(GEB\) through Cyber Defense and Resilient System \(CYDRES\)](#).

06/2020–present

AWARDS

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| ▪ DAC2021 Young Fellows program | 2021 |
| ▪ Northwestern University Ph.D. Fellowship | 2018-2019 |
| ▪ Zhiyuan College honor scholarship | 2014-2018 |
| ▪ Excellent students' scholarship, Shanghai Jiao Tong University | 2014-2018 |
| ▪ Bronze medal in National Olympiad in Informatics | 2013 |
| ▪ Gold medal in National Olympiad in Informatics in Provinces | 2012 |