

Yichen Li

Phone: 520 909 7639 Email: yichenl@arizona.edu

Education

The University of Arizona

Tucson, USA

Ph.D. in Computer Science, Advisor: Prof. Chicheng Zhang

Aug.2020 - Present

- GPA: 3.67/4.0

University of Science and Technology Beijing (USTB)

Beijing, China

B.Eng in Intelligent Science and Technology

Sept.2016 - June.2020

- GPA: 3.91/4.0, equivalent to 91.7/100 Ranking: Top 2%

TOEFL: 104 GRE: 326

Publication

Yichen Li, Chicheng Zhang. Agnostic Interactive Imitation Learning: New Theory and Practical Algorithms. ICML 2024.

Yichen Li, Chicheng Zhang. On Efficient Online Imitation Learning via Classification. NeurIPS 2022.

Industrial Experience

Research Intern at Microsoft Research (Human-oriented AI)

2024.04-2024.06

- Developed an offline imitation learning training pipeline for simulator-based racing, supporting multiple data sources and model types. Conducted a comprehensive ablation study with domain expert guidance.
- Designed and trained a transformer-based model for state and action sequence prediction, achieving full trajectory self-play and enabling self-correction without access to an interactive environment.

Research Scientist Intern at Sanofi

2023.05-2023.08

- Proposed dual branch GANs for unpaired stain transfer, which generates controllable virtual staining images via the guidance of segmentation masks.
- Published research paper Clinical Trial Histology Image based End-to-End Biomarker Expression Levels Prediction and Visualization using Constrained GANs, which was accepted by MICCAI-AMAI 2023.
- Designed and implemented an end-to-end segmentation and stain transfer framework that work around the challenges in unpaired segmentation.

Academic Experience

Agnostic Interactive Imitation Learning: New Theory and Practical Algorithms

2022.08-2024.03

Department of Computer Science, the University of Arizona

Advisor: Prof. Chicheng Zhang

- Proposed a new oracle-efficient algorithm Mixed Follow the Perturbed Leader with Poisson Perturbations (MFTPL-P) with provable finite-sample guarantees, given the sample access to some "explorative" distribution. This result hold for any policy class, which is considerably broader than prior state of the art.
- Proposed Bootstrap-Dagger, a more practical variant that does not require additional sample access.
- Empirically, MFTPL-P and Bootstrap-Dagger notably surpass online and offline imitation learning baselines in continuous control tasks.

On Efficient Online Imitation Learning via Classification

2021.01-2022.07

Department of Computer Science, the University of Arizona

Advisor: Prof. Chicheng Zhang

- Studied classification-based online imitation learning (COIL) and the fundamental feasibility to design oracle-efficient regret-minimization algorithms in this setting.
- Proved that in the COIL problem, any proper online learning algorithm cannot guarantee a sublinear

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regret in general.

- Proposed Logger, an improper online learning algorithmic framework, that reduces COIL to online linear optimization, by utilizing a new definition of mixed policy class.
- Designed two oracle-efficient algorithms within the Logger framework that enjoy different sample and interaction round complexity tradeoffs, and show their improvements over behavior cloning.
- Demonstrated the infeasibility of efficient dynamic regret minimization in the Logger framework

Dagger with Linear Policy Class and Logistic Loss

2020.09-2020.12

Department of Computer Science, the University of Arizona

Advisor: Prof. Chicheng Zhang

- Studied several algorithms under the learning framework of DAgger to address the logistic loss function, including Follow the Regularized Leader, Follow the Approximate Leader, and Aggregating algorithm.
- Achieved $\tilde{O}(1)$ static regret under logistic loss function with the Aggregating algorithm.

Stereo Matching and View Synthesis Based on Generative Adversarial Networks

2019.05-2020.06

Institute of HCI and Media Integration, Tsinghua University

Advisor: Prof. Jiangtao Wen

- Proposed a novel algorithm named “Cost Volume Based Rendering” and implemented it by using CUDA and TensorFlow.
- Designed and implemented a GAN based stereo matching network, which can be trained in an end-to-end manner, generating disparity maps and synthesized views in a single network.
- Beijing outstanding undergraduate graduation thesis (for top 0.7% students).

Improvement of Super-resolution Algorithms for Medical Images Based on GAN

2018.11-2019.07

National Undergraduate Innovation Training Project

- Achieved high-quality 4x magnified medical image reconstruction with improved stability and reduced computational cost. Published a research paper at the CCF Conference on Artificial Intelligence and won the national second prize at the 12th Chinese Collegiate Computing Competition.

Honors&Awards

ICML 2024 Student Award	2024
NeurIPS 2022 Scholar Award	2022
Outstanding Undergraduate Graduation Thesis from Beijing (for top 0.7% students)	2020
Outstanding Graduates from Beijing (for top 5% students)	2020
National Scholarships (for top 2% students)	2017, 2018
National Third Prize of University Computer Games Championship	2019
National Second Prize of Chinese Collegiate Computing Competition	2019
First Prize in Computer Games Championship of USTB	2019
National Second Prize of China Undergraduate Mathematical Contest in Modeling	2018
First Prize in Undergraduate Physics Competition of USTB	2017

Programming Skills

Python (PyTorch, PyTorch Lightning, TensorFlow), C/C++, LaTeX

Academic Service

ICML2023, ACL2023, NeurIPS2023, ICLR2024, COLT2024, NeurIPS2024

Reviewer