

Letian Chen

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EDUCATION

Georgia Institute of Technology

Expected May 2025

Doctor of Philosophy in Computer Science, College of Computing

Atlanta, GA

- **GPA: 4.00/4.00**

Georgia Institute of Technology

May 2020

Master of Science in Computer Science, College of Computing

Atlanta, GA

- **GPA: 4.00/4.00**

- Concentration: Machine Learning

Peking University

July 2018

Bachelor of Science in Psychology, School of Psychological and Cognitive Sciences

Beijing, China

Bachelor of Science in Computer Science, School of Electronics Engineering and Computer Science

- **Overall GPA: 3.70/4.00**
- **Psychology Major GPA: 3.78/4.00**
- **Computer Science Major GPA: 3.80/4.00**

PUBLICATIONS

- **[Best Paper Finalist][Plenary Talk]** L. Chen, R. Paleja, and M. Gombolay, "Learning from suboptimal demonstration via self-supervised reward regression," in *Proceedings of Conference on Robot Learning (CoRL)*, 2020
- R. Paleja, A. Silva, L. Chen, and G. Matthew, "Interpretable and personalized apprenticeship scheduling: Learning interpretable scheduling policies from heterogeneous user demonstrations," in *Proceedings of Advances in Neural Information Processing Systems (NeurIPS)*, 2020
- L. Chen, R. Paleja, M. Ghuy, and M. Gombolay, "Joint goal and strategy inference across heterogeneous demonstrators via reward network distillation," in *Proceedings of International Conference on Human-Robot Interaction (HRI)*, 2020
- L. Chen, "Model-free vs model-based algorithms in human sequential decision making," *Undergraduate Thesis*, 2018
- Y. Fan, L. Chen, and Y. Wang, "Efficient model-free reinforcement learning using gaussian process," *arXiv preprint arXiv:1812.04359*, 2018

AWARDS & HONORS

- Best paper finalist in Conference on Robot Learning (CoRL 2020) **Nov 2020**
- First place in Brainhack ATL 2019 Track 2 **Nov 2019**
- Graduate of merit in Beijing (5%) **Jul 2018**
- Excellent Graduate in Peking University **Jul 2018**
- Zhang Wenjin Scholarship (1%) **Dec 2017**
- Scholarship for undergraduate research **Sep 2017**
- First Prize of National Olympiad in Informatics in Provinces Advanced Group **Nov 2012**

RESEARCH EXPERIENCE

Learning from Suboptimal Demonstration

DEC 2019 – AUG 2020

Graduate Research Assistant, Advisor: Matthew Gombolay, Georgia Institute of Technology

- Characterized policy performance degradation from noise injection
- Proposed a novel IRL framework, SSRR, that accurately learn the latent reward function from suboptimal demonstration
- Proposed Noisy-AIRL to enhance the robustness of SSRR by providing more reliable initial reward
- Applied algorithm on three virtual robot control tasks (HalfCheetah, Hopper, Ant) and one real robot table-tennis task; achieved more accurate learning of reward and better-than-best-demonstration policy

Joint Inference of Task Reward and Strategy Reward

Aug – Dec 2019

Graduate Research Assistant, Advisor: Matthew Gombolay, Georgia Institute of Technology

- Modeled the reward functions that humans optimized as a linear combination of task reward (shared by all strategies) and strategy reward (specific to each strategy)
- Proposed a novel IRL framework where task rewards and strategic rewards are jointly inferred to gain a better estimation of the task reward and decomposition of strategy reward components
- Applied algorithm on two virtual robot control tasks (Inverted Pendulum and Hopper) and one real robot table-tennis task; achieved better learning of task reward than SOTA AIRL and successfully extracted strategic rewards

Model-Free and Model-Based Learning in Human Decision Making

Sep 2017 – May 2018

Undergraduate Thesis, Advisor: Hang Zhang, Peking University

- Designed an experiment to investigate human's learning strategy (model-free vs model-based) under multi-task RL setting
- Showed hybrid model with forgetting mechanism best explained subject data via computational model comparison
- Illustrated the conclusion by simulation showing learned hybrid model recovered subject behaviors
- Exploring meta-learning computational model explanations

Better Exploration utilizing Good and Bad Demos

Sep 2016 – Jan 2018

Team Leader, Undergraduate Research, Advisor: Yizhou Wang, Peking University

- Introduced a new LfD algorithm built on Posterior Sampling treating variety-quality demonstration data as exploration seeds
- Proposed sample efficiency proof for the new approach based on Gaussian Process and Posterior Sampling
- Developed a tool to record human demonstrations on OpenAI Universe platform

PROJECTS

Self-Supervised Action Mining for Fish Behavior, Georgia Institute of Technology

Sep 2019 – Dec 2019

- Designed pretext tasks to self-supervised learn features that capture fish behaviors
- Clustered learned features to discover meaningful fish behaviors
- Finetuned on downstream classification tasks and achieved better performance than Resnet-3D trained from scratch

Reconnaissance Blind Multi-Chess, Georgia Institute of Technology

Jan 2019 – May 2019

- Applied maximum information gain principle for reconnaissance and maintained belief space for possible board states
- Learned neural network policy to choose action based on belief states

Doodle Recognition, Georgia Institute of Technology Sep 2018 – Dec 2018

- Explored NN architectures (ShuffleNet, MobileNet, 3D-CNN, LSTM, etc.) to tackle Doodle Recognition task
- Results are shown on [Github](#)

Face Morphing, Peking University Mar 2016 – May 2016

- Implemented face morphing algorithm in C++ via face landmark detection and Delaunay triangulation
- Codebase and Results are shown on [Github](#)

Chinese Word Segmentation, Peking University Feb 2016 – May 2016

- Developed crawler to automatically scrape Chinese news articles
- Calculated condensation degree and freedom degree for each word, applied n -gram to divide sentence into words
- Improved accuracy by introducing word frequency to assist segmentation

LEADERSHIP EXPERIENCE

Minister of Academic Department, Students' Union, School of Psychological and Cognitive Sciences, Peking University Sep 2015 – July 2016

- Scheduled academic events (e.g., academic seminars, psychology culture events, senior experience sharing seminars, etc.)
- Liaised with students and departments regarding academic affair

WORK EXPERIENCE

Georgia Institute of Technology, Teaching Assistant Aug 2020 – Dec 2020

- Assisted OMSCS 7641 *Machine Learning*
- Graded homework and exam papers

Georgia Institute of Technology, Research Assistant May 2019 – May 2020

- Assisted Professor Matthew Gombolay
- Worked on multi-agent expected policy gradient and sampling-based policy gradient
- Worked on heterogeneous inverse reinforcement learning and robot table tennis
- Worked on learning from suboptimal demonstration

Georgia Institute of Technology, Teaching Assistant Jan 2019 – May 2019

- Assisted OMSCS 7641 *Machine Learning*
- Graded homework and exam papers

Peking University, Teaching Assistant Sep 2016 – Jan 2017

- Assisted Professor Jun Sun in *Introduction to Computation*
- Designed practice sets, held office hour, set exam papers

Peking University, PKU Helper Team, Senior iOS Developer Sep 2015 – Aug 2018

- Developed and maintained iOS app “PKU Helper” for Peking University campus life (10k+ users)

SKILLS

Python, Tensorflow, C/C++, Matlab, Java, Bash, SQL, JavaScript, HTML, CSS, Scheme, Swift, R