

Tianyang Zhao

tyzhao@ucla.edu • <https://programminglearner.github.io>

EDUCATION	University of California, Los Angeles Ph.D. student in Statistics, GPA: 3.93/4.00 Sep 2019 – Present Advisor: Prof. Ying Nian Wu, <i>Center for Vision, Cognition, Learning and Autonomy (VCLA)</i>
	Peking University B.S. in Data Science and Big Data Technology; <i>Yuanpei College</i> Sep 2015 – Jul 2019 Advisor: Prof. Yizhou Wang, <i>School of EECS</i>
INTERESTS	Machine learning, computer vision, especially deep unsupervised and generative learning
PUBLICATIONS	<p>[1] Tianyang Zhao, Yifei Xu, Mathew Monfort, Wongun Choi, Chris Baker, Yibiao Zhao, Yizhou Wang, Ying Nian Wu. “Multi-Agent Tensor Fusion for Contextual Trajectory Prediction”. <i>Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2019. <i>ICML Workshop on AI for Autonomous Driving</i>, 2019.</p> <p>[2] Yifei Xu, Jianwen Xie, Tianyang Zhao, Chris Baker, Yibiao Zhao, Ying Nian Wu. “Energy-Based Continuous Inverse Optimal Control”. <i>NeurIPS Workshop on Autonomous Driving</i>, 2020.</p>
WORK EXPERIENCE	Twitter Inc, Cortex Applied Research Software Engineering Intern Jun 2020 – Sep 2020 <ul style="list-style-type: none">Explored sparse attention networks for ads recommendation system and achieved significant offline gains over the model currently used in production.
ACADEMIC EXPERIENCE	Peer-reviewed Journals and Conferences: CVPR, ICCV, IROS, IEEE-ITS Teaching Assistant Department of Statistics, UCLA: Intro to Probability (100A), Theoretical Stats (200B)
RESEARCH EXPERIENCE	Inhibition Neurons for Representation Learning <i>Center for Vision, Cognition, Learning and Autonomy, UCLA</i> Mar 2020 – Present
	Multi-Agent Trajectory Prediction for Autonomous Driving <i>UCLA & ISEE Inc. (an MIT autonomous driving start-up)</i> Jun 2018 – Nov 2018 Advisors: Ying Nian Wu, Wongun Choi, Chris Baker, Yibiao Zhao <ul style="list-style-type: none">Proposed, implemented, and trained novel Multi-Agent Convolutional Tensor Fusion networks to reason about social interactions among varying numbers of agents & about constraints from scene contexts, which retains the spatial structure of agents and the scene;Conducted ablative studies on Stanford Drone and NGSIM datasets, outperformed <i>Social GAN</i>;Paralleled Multi-Agent code on GPU; presented at CVPR 2019; released the code on Github;Participated in proposing another Inverse Optimal Control (IOC) based prediction approach, which learns non-Markovian cost functions defined over entire trajectories; participated in extending weighted feature-based cost functions to neural network augmented ones.
	Automatic Music Generation <i>School of EECS, Peking University Advisor: Yizhou Wang</i> Jun 2017 – Jun 2018 <ul style="list-style-type: none">Trained hierarchical LSTM to generate music with long-range consistency, and proposed to incorporate domain knowledge into reinforcement learning rewards to encourage long-term structure.
OPEN SOURCE PROJECTS	Chinese Chess Game and AI with Heuristic α-β Tree Search Feb 2018 <ul style="list-style-type: none">Developed a Chinese Chess game and AI program from scratch; 3000+ lines in C++.Proposed and implemented a novel approach of α-β tree search based on heuristic methods;Proved its superiority over conventional α-β search w.r.t. time complexity and empirical winning rate; Automatic Back-Propagation for DAG and Neural Networks Mar 2018
AWARDS AND HONORS	Merit Student (top 10%), Peking University Nov 2017 Meritorious Winner (top 15%), Mathematical Contest in Modeling (MCM) Feb 2018 3rd Prize, ACM Programming Contest in Peking University May 2017