

Tianyang Zhao

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EDUCATION	University of California, Los Angeles Ph.D. student in Statistics, GPA: 3.93/4.00 Sep 2019 – Jun 2024 (anticipated) 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, Language Modeling, Generative Learning, Behavior Prediction, Energy-Based Models, Markov Chain Monte Carlo, Reinforcement Learning
PUBLICATIONS	<ol style="list-style-type: none">[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.[2] Bo Pang, Tianyang Zhao, Xu Xie, Ying Nian Wu. “Trajectory Prediction with Latent Belief Energy-Based Model”. <i>Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2021.[3] 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.
WORK EXPERIENCE	Twitter Inc, Cortex - Applied Research Team <i>Engineering Intern Mentors: Ying Xiao, Yury Malkov, Ahmed El-Kishky</i> Jun 2021 – Sep 2021 <ul style="list-style-type: none">Applied deep language models on users’ historically engaged tweet sequences to build user profiles for future engagement prediction, and achieved offline gains over current production model.Explored efficiency optimizations for overcoming IO barriers in training these models on very large scale distributed dataset, including re-implementing product quantization decoder on GPU.Researched intermediate bottleneck representations for transformers to shorten inference time. <i>Software Engineering Intern Mentor: Yury Malkov</i> Jun 2020 – Sep 2020 <ul style="list-style-type: none">Explored sparse attention networks on tabular data for ads recommendation system and achieved significant offline gains over current production model.
ACADEMIC EXPERIENCE	Peer-reviewed Journals and Conferences: CVPR, ICCV, ICRA, IROS, IEEE-T-ITS, IEEE-RA-L Teaching Assistant <i>Department of Statistics, UCLA:</i> Intro to Probability (100A), Theoretical Stats (200B)
RESEARCH EXPERIENCE	UCLA, Center for Vision, Cognition, Learning and Autonomy Mar 2020 – Present <ul style="list-style-type: none">Developed deep latent-space energy-based models (EBM) for unsupervised and generative learning, and developed an amortized variational inference version of it for trajectory prediction;Applied short-run Markov Chain Monte Carlo (MCMC) to reduce sampling time for the negative phase of training these energy-based models;Studied inhibition neurons for inducing sparsity in deep representation learning;Explored semi-supervised learning with consistency regularization for learning with noisy samples. ISEE Inc, Autonomous Driving - Behavior Prediction Team Jun 2018 – Nov 2018 <ul style="list-style-type: none">Designed Multi-Agent Tensor Fusion ConvNets to reason about social interactions among varying numbers of agents & about constraints from scene contexts for trajectory prediction;Explored energy-based continuous Inverse Optimal Control (IOC) to learn non-Markovian cost functions over vehicle trajectories.
OPEN SOURCE PROJECTS	C++: Chinese Chess Game and AI with Heuristic α - β Tree Search Feb 2018 Python: 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