JIUHONG XIAO

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EDUCATION

New York University Jan 2020 - Dec 2020
M.S. in Computer Science GPA: 3.94/4.0

University of Science and Technology Beijing Sep 2015 - Jun 2019
B.Eng. in Intelligence Science and Technology GPA: 3.65/4.0, Major GPA: 3.84/4.0

RESEARCH INTERESTS

Computer Vision, Robotics, Deep Reinforcement Learning, Multi-view Perception.

PUBLICATIONS

Identity Preserving Loss for Learnt Image Compression 2021
Jiuhong Xiao, *Lavisha Aggarwal, Prithviraj Banerjee, Manoj Aggarwal, Gerard Medioni*
Submitted.

Multi-Robot Collaborative Perception with Graph Neural Networks 2021
Yang Zhou, ***Jiuhong Xiao****, Yue Zhou, Giuseppe Loianno*
Submitted.

Toward Coordination Control of Multiple Fish-Like Robots: Real-Time Vision-Based Pose Estimation and Tracking via Deep Neural Networks 2021
Tianhao Zhang, ***Jiuhong Xiao****, Liang Li, Chen Wang, Guangming Xie*
IEEE/CAA Journal of Automatica Sinica 8, no. 12 (2021), 1964-1976.

Image Encryption Algorithm Based on Memristive BAM Neural Networks 2018
Jiuhong Xiao*, Weiping Wang, Meiqi Wang*
IEEE 3rd International Conference on Data Science in Cyberspace (2018), 205-212.

The Stability of Memristive Multidirectional Associative Memory Neural Networks With Time-varying Delays in the Leakage Terms via Sampled-data Control 2018
Weiping Wang, Xin Yu, Xiong Luo, Long Wang, Lixiang Li, Juergen Kurths, Wenbing Zhao, ***Jiuhong Xiao***
PLOS ONE 13, no. 9 (2018), e0204002.

EXPERIENCE

New York University Sep 2021 - Present
Graduate Teaching Assistant
• Supported Deep Learning course with 100+ students.
• Created the homework materials, graded assignments, and answered students' questions for homework and lectures.

Amazon May 2021 - Aug 2021
Applied Scientist Intern
• Developed a VAE-based compression method specific to face images, achieving **5x** compression ratio of High Efficiency Video Coding (HEVC) format with acceptable image quality.
• Jointly optimized compression model with face recognition downstream model, and reduced the file size to **27.4%** of HEVC with lower False Rejection Rate (FRR) under same False Acceptance Rate (FAR).

New York University May 2020 - May 2021
Research Assistant (advised by Alfredo canziani, Yann LeCun)
• Implemented an offline autonomous driving policy-training pipeline based on annotated lane maps with limited historical driving data.

• Designed the training strategy and specific loss functions to reduce lane annotation cost and improve the generalization performance of the policy for different lane layouts.
• Increased mean survival rate from 75% to **86%** compared to the baseline offline RL method to reduce collision and offroad crashes.

Intelligent Biomimetic Design Laboratory, Peking University Jun 2019 - Jan 2020
Research Assistant (advised by Guangming Xie)
• Implemented a fish pose estimation method fusing top-down and bottom-up paradigms, increasing mAP by **7.9%** and **10.9%** compared with classical methods using single paradigm.
• Developed a fish pose tracking system based on keypoint matching, reducing tracking error by **72.7%**.
• Built a robotic fish dataset with over **1,300** annotated frames as the benchmark for robotic fish pose estimation and the foundation of fish group control.

SELECTED PROJECTS

Multi-robot Perception with Graph Convolution Network Sep 2020 - Dec 2020
Advisor: Rob Fergus. New York University
• Developed a GNN-based system to improve the perception ability of a single robot by sharing information across the robot network.

GPU Accelerated Applications with CUDA and OpenMP Sep 2020 - Dec 2020
Advisor: Mohamed Zahran. New York University
• Compared the performance of different GPU-friendly algorithms on CUDA and OpenMP-GPU.

Autodetection: An End-to-end Autonomous Driving Detection System Jan 2020 - May 2020
Advisors: Yann LeCun, Alfredo Canziani. New York University
• Won **2nd** place in general ranking on roadmap prediction and object detection task.
• Built an end-to-end autonomous driving detection system to predict bird-view roadmap and objects from multi-view images without measurement of camera parameters.
• Improved model performance with feature pyramid network and self-supervised learning by **7.72%** mAP on roadmap and **14.35%** mAP on detection.

A Survey of Bayesian Methods for Deep Learning Jan 2020 - May 2020
Advisor: Joan Bruna. New York University
• Surveyed recent works that apply principles of Bayesian inference to deep learning and noted special applications of Bayesian deep learning.
• Implemented PyTorch version of Bayesian methods like SGLD, Deep Ensembles, and MCDropout.

HONORS AND AWARDS

Excellence Award for Undergraduate Thesis, USTB	2019
Third Prize, Chinese College Students Intelligence Design Contest, Beijing	2018
Peoples Scholarship, USTB	2015 - 2018
First Prize, Mathematical Modeling Competition, Beijing	2017
Excellence Award, Boer National College Students Innovation Entrepreneurship Competition, Beijing	2017
Second Prize, Sensor Design Competition, USTB	2016
Third Prize, iCAN International Contest of Innovation, China	2016

SKILLS

Programming	C/C++, Java, Python, Matlab, SQL.
Platform/tools	Opencv, Pytorch, MySQL, CUDA.
Languages	English, Mandarin.