

HONGYI CHEN

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EDUCATION

Georgia Institute of Technology	Atlanta, GA
M.S in Computer Science; GPA: 4.0 / 4.0	May 2023
Carnegie Mellon University	Pittsburgh, PA
M.S in Electrical and Computer Engineering; GPA: 3.72 / 4.0	May 2021
Peking University	Beijing, China
B.A in Economics; GPA: 3.60 / 4.0	Jun 2019
Beijing University of Chemical Technology	Beijing, China
B.S in Mathematics and Applied Mathematics; GPA: 3.92 / 4.0	Jul 2018

PUBLICATIONS

1. **H. Chen**, S. Feng, P. Vela, C. Liu. “Safe Hierarchical Navigation Framework in Cluttered Dynamic Uncertain Environments.” Plan to submit to Conference on Decision and Control, 2022.
2. R. Xu, **H. Chen**, Y. Lin, P. Vela. “SGL: Symbolic Goal Learning for Human Instruction Following in Robot Manipulation.” Submitted to RA-L, 2022.
3. **H. Chen**, C. Liu. “Safe and Sample efficient Reinforcement Learning for Clustered Dynamic Uncertain Environments.” *IEEE Control System Letters*, 2021: Volume 6, 1928 – 1933.
4. **H. Chen**, F. Zhang, B. Tang, Q. Yin and X. Sun. “Slim and Efficient Neural Network Design for Resource Constrained SAR Target Recognition.” *Remote Sensing*, 2018: Volum 10, Issue 10.

ACADEMIC PROJECTS

Robot Manipulation Based on Human Instruction with Ambiguous Requests	Atlanta, USA
Georgia Institute of Technology	May 2021 – Sep 2021
<ul style="list-style-type: none">➤ Adopted mask R-CNN as perception module to detect objects’ category with segmentation masks as initial state➤ Employed Planning Domain Definition Language (PDDL) planner to generate sequence of primitive actions and sent to robots to perform in AI2THOR	
Safe Reinforcement Learning in Cluttered Dynamic Environment	Pittsburgh, USA
Carnegie Mellon University	May 2021 – Sep 2021
<ul style="list-style-type: none">➤ Implemented DDPG and TD3 reinforcement learning (RL) algorithms to control autonomous vehicle➤ Adopted Safe Set Algorithm (SSA) to monitor and modify the RL action to guarantee safety and improve sample efficiency during the agent learning process	
GPU-Optimized Search for Gravitational Waves (GW)	Beijing, China
Tsinghua University	June 2018 – Sep 2018
<ul style="list-style-type: none">➤ Accelerated online-searching pipeline for GW from binary coalescences, allowing low-latency GW signal detection➤ Parallelized the linear recurrence and optimized inefficient memory access in filtering process to achieve 10x speedup➤ Proposed a comprehensive methodology to solve low-latency requiring big data analysis including three pillars: parallel algorithms, hardware devices, and implementation optimization	
Deep Neural Network Compression	Beijing, China
Beijing University of Chemical Technology	Feb 2018 – May 2018
<ul style="list-style-type: none">➤ Designed and implemented slimmed convolutional neural network (CNN) in resource-constrained platforms➤ Achieved 40x compression in CNN model for synthetic aperture radar target recognition, maintaining its 98.5% accuracy➤ Proposed efficient algorithm to compute the pruned CNN, improving speed by 2-4 times	

PROFESSIONAL EXPERIENCE

Perception and Path Planning for Autonomous Vehicles	Pittsburgh, USA
Carnegie Mellon University	May 2020 – Aug 2020
<ul style="list-style-type: none">➤ Implemented path planning, from high level behavior planning to low level RRT path generation and collision checking➤ Implemented vehicle coordination at intersection based on vehicle to vehicle (V2V) communication and distributed voting➤ Adopted IMU and GPS sensor fusion algorithm for localization and improved the accuracy by 90% when compared to GPS-based kalman filter localization in Carla➤ Adopted YOLOv3 network to detect road lanes and implemented pure-pursuit control based on the middle road line	