Shijia Chai

GitHub: https://github.com/ShijiaChai

Tel:(+1)4126893950 Email:chaisj15@tsinghua.org.cn

Add: 4500 Centre Avenue Pittsburgh, PA 15213 United States

EDUCATION BACKGROUND

University: Tsinghua University Aug 2015- Jul 2019

B.E. in Electronic Information Science and Technology

Deep Learning and Neural Networks: Theory and Applications | PATH Academics | Online |

Aug 8 2022- Aug 30 2022

➢ Participation B Assignment A Final Project A Total Grade A

PUBLICATION

Shijia Chai, Improved Value Iteration Network for Path Planning .has been accepted by the 2nd International Conference on Computing Innovation and Applied Physics (CONF-CIAP 2023), March 25, 2023, Stanford, CA, US

HONORS & AWARDS

➢ Tsinghua Academic Progress Scholarship

➢ Second Prize of College Physics Competition in Beijing Division in 2016

➢ Third Prize of Tsinghua EE Speech Contest in 2015

➢ First Prize of Chinese Physics Olympiad in the Division in 2014

RESEARCH EXPERIENCES

Improved Value Iteration Network for Path Planning | Remote | Aug 2022-Oct 2022
Unofficial Personal Assistant, Advisor: Mark Vogelsberger, Associate professor at MIT

➢ Completed the recurrence and debugging of the code of the original value iteration network (VIN) by using PyTorch Deep Learning Framework

➢ Used deeper value iteration network, Dueling Architecture, Batch Normalization (BN_Layers), and Hierarchical Structure VIN to improve upon the original VIN

➢ Trained the model on the data set and experimented on the test set.

Using GANs to Target Recognition in SAR Images | Tsinghua University | Jun 2019-Mar 2020

Research Assistant, Advisor: Yong Ren, Researcher at Tsinghua University

➢ Researched and applied the semi-supervised GANs to target recognition in SAR Images

➢ Achieved impressive performance on average accuracies of automatic target recognition in SAR Images

➢ Used few labeled data and relatively adequate unlabeled data to jointly train the model

Path Planning Based on Deep Reinforcement Learning | Tsinghua University | Dec 2018-May2019
Research Assistant, Advisor: Yong Ren, Professor at Tsinghua University

➢ Trained an improved value iteration network to plan optimal path in maps of different sizes

➢ Used PyTorch to build the model and supervised imitation learning to train

➢ Applied skip connections, Dueling Architecture, Batch Normalization (BN), and hierarchical modules

➢ Improved the success rate by around 20% compared with widely used method based on DQN, FCN

Tsinghua University | Energy Efficient Computing Group | Research Assistant | Beijing |

Jul 2017 – Jun 2018

➢ Considered the reliability of Neural Network Accelerator based on FPGAs and assisted in a FPGA-Based Neural Network Inference Accelerator project

➢ Summarized methods of machine learning covering SVM, KNN, and Artificial Neural Network like CNN, RNN, GAN, etc.

➢ Researched autonomous control problem of microrobots, tried several deep reinforcement learning algorithms like DQN, and proposed an improved network to deal with complex environment

WORKING EXPERIENCES

General Electric(China)Co.,LTD. | Department of Renewable Energy | Apr 2020 – Nov 2020
Intern

➢ Proposed to use digital computer technology for monitoring and management, collection and statistics of wind turbine generator system

➢ Analyzed the grid-connection efficiency of wind turbines in different seasons and regions

➢ Participated in the company's digital management system research and development

Sensetime Technology Co.,LTD. | Computer Vision |Sep 2019-Mar 2020

Research Assistant /Algorithm Researcher

➢ Participated in the research and development of automatic driving algorithm based on pure vision without radar remote sensing equipment assistance

➢ Applied the method of deep learning in path planning and image sensing, and improved the success rate of vehicle obstacle avoidance in complex urban road environment

COMPUTER SKILLS

C/C++, Matlab, Python, TensorFlow, PyTorch, Auto CAD, Java, Verilog, Photoshop

STANDARDIZED TESTS

GRE: 338 (V 168/98%; Q 170/96%; AW 3.0/13%)

TOEFL: 109 (R 29; L 30;S 23;W 27)