Hongyu Tu

TEL: 240-706-6288 Email: hongyutu@umass.edu Website: http://h-tu.github.io

EDUCATION

College of Information & Computer Sciences, University of Massachusetts, Amherst **MA, USA**
Master of Science in Computer Science *Aug. 2021 – May 2023*

A. James Clark School of Engineering, University of Maryland, College Park **MD, USA**
Bachelor of Science in Computer Engineering *Aug. 2017 – May 2021*

SKILLS

Programming Languages & Libraries: Python, MATLAB, C, C++, Java, Assembly, Arduino, SQL, PyTorch, TensorFlow

RESEARCH EXPERIENCE

University of Massachusetts, Amherst **MA, USA**
Project: Re-visiting Retrosynthesis

Independent Study, Industry Mentor: Veronika Thost (IBM), Ph.D. Mentor: Jay-Yoon Lee *Jan. 2022 – July. 2022*

- Evaluated the multi-step performance of 6 existing single-steps models for retrosynthesis analysis.
- Augmented the data and proposed new metrics for model evaluation.
- Paper "Retrosynthesis Prediction Revisited" submitted to NeurIPS 2022 Workshop.

University of Maryland, College Park **MD, USA**
Project: Robotic Arm Control Based on Reinforcement Learning

Undergraduate Research, Supervisor: Ph.D. Candidate Xiaomin Lin *Aug. 2020 – Dec. 2020*

- Proposed to use policy learned through reinforcement learning to control robot arm interacting with objects to maximize the perception of the object during object identification,
- Conducted the simulation experiments with the ML_Agents library in the Unity.

INTERNSHIP

Futurewei Technologies, Inc., IC Lab **Texas, USA**
ARVR System and Algorithm Research *June. 2023 – Present*
Used the Azure Kinect DK for 3D tracking, specifically with the use of depth information, including body skeleton, hand gesture as well as facial expression.

Tencent, News Feed Flatform Department **Shenzhen, China**
Recommender System Optimization Specialist *Dec. 2019 – Jan. 2020*
Participated in optimizing the recommendation engine for Tencent 'Kandian', a new content service for info stream, predicting the view counts with just the title of an article, finding keywords that effects view counts the most, and acquiring trending topics up to date.

SELECTED COURSEWORKS

Course Project for COMP SCI 685: **Advanced Natural Language Processing** *May. 2022*

- Scraped over 1 million Danmu (live comments) from a Chinese video site Bilibili to form a custom dataset.
- Proposed to extract in-jokes that are popular within different categories of videos from the 1 million text-based comments, and used GAN to generate Danmu that fits specified video categories.
- Performed fine-tuning to BERT so that it learns to predict the origin category of certain in-jokes.

Course Project for COMP SCI 682: **Neural Networks: Modern Intro** *Nov. 2021*

- Applied computer vision and reinforcement learning to play an arcade game called Crossy Road.
- Trained three neural networks to interact with the game: including a custom YOLO for object detection, a CNN for classification of different stages, as well as a policy model for control trained from reinforcement learning.

Course Project for COMPSCI 687: **Reinforcement Learning** *Nov 2021*

- Implemented Reinforce with Baseline, One-Step Actor-Critic, Episodic Semi-Gradient n-step SARSA with PyTorch.
- Constructed Environments including Grid World, Mountain Car, Cartpole, and Blackjack and applied the three algorithms above to the environments to compare the performances.