Hongyu Tu

240-706-6288 | hongyutu@umass.edu | linkedin.com/in/h-tu/ | h-tu.github.io

EDUCATION

University of Massachusetts, Amherst — Amherst, MA
Master of Science in Computer Science — *Aug. 2021 – May 2023*

University of Maryland, College Park — College Park, MD
Bachelor of Science in Computer Engineering — *Aug. 2017 – May 2021*

TECHNICAL SKILLS

Languages: Python, C/C++, Java, MATLAB, SQL, Assembly, HTML
Tools & Libraries: Git, Docker, PyTorch, pandas, NumPy, Flask, Matplotlib, Seaborn, OpenCV, SciPy
Courses: Software Engineering, Data Science, Reinforcement Learning, Natural Language Processing, Deep Learning for Computer Vision and Graphics, Probabilistic Graphical Models, Machine Learning Algorithms (numerical optimization, statistical estimation)

EXPERIENCE

Software Solution Engnieer — Jan. 2024 – Present
Jinko Solar Industries, Inc. — *Remote*
- Collaborated with manufacturing, human resources, and workplace safety departments to develop and deploy custom web applications (RPA) on Linux servers
- Led full stack development of applications, including vehicle management, conference room reservation, asset inventory management, and machinery safety inspection logging and alerting system. Multiple apps with database was created and became indispensable in employees' daily workflow.

Algorithm Engineer Intern - ARVR System — June – Dec. 2023
Futurewei Technologies, IC Lab — *Austin, TX*
- Built real-time tracking & rendering system using Microsoft Azure Kinect DK, MediaPipe, Unity, Zeromq, etc.
- Defined custom file format for humanoid location and rotation data storage and created several datasets containing animations done by different avatars in such format
- Designed algorithms to improve the tracking accuracy for finger and face landmarks over long-distance
- Used transformer model to perform motion prediction using spatial and temporal information

Machine Learning Engineer Intern - Recommender System — Dec. 2019 – Jan. 2020
Tencent, News Feed Flatform Department, KanDian Team — *Shenzhen, China*
- Collected dataset with Tencent Internal Domain knowledge for better performance of the model.
- Used NLP techniques to improve the recommender system and generate insights with real-time data feed.
- Aimed to give user better article suggestion by predicting which one will be read the most beforehand.

PROJECTS

Re-visiting Retrosynthesis | *Python, PyTorch, AiZynthFinder, PaRoutes* — Jan. – July 2022
- Evaluated the multi-step performance of 6 existing single-steps models for retrosynthesis analysis
- Augmented the data to form a new dataset and proposed new metrics for model evaluation
- Paper "Retrosynthesis Prediction Revisited" selected as NeurIPS 2022 Workshop paper

Bilimemenet | *Python, pandas, Hugging face* — Jan. – 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 videos categories from the text-based comments using fine-tuned BERT, and generate Danmu that fits specified video categories

Auto Crossy Road | *Python, PyTorch* — July – Dec. 2021
- Applied computer vision and reinforcement learning to play an arcade game called Crossy Road with three modules: game object detection, state representation generation, and decision making.
- Trained custom YOLO with Self-supervised labeling for real-time game object detection, enabling accurate identification of game elements, which is crucial for decision-making.
- Implemented state representation techniques to reduce input complexity, improving the model's efficiency.
- Used over 100 hours of gaming sessions to train a custom Deep Q Learning network which outperforms supervised learning approaches