

Tong Xu

✉ txu25@gmu.edu <https://xutong05.github.io/>  Google Scholar

EDUCATION

George Mason University

Ph.D. in Computer Science

Fairfax, VA

Aug. 2023 - Present

- GPA: 3.92/4.0
- Research Focus: Reinforcement Learning for Field and Legged Robotics

University of Southern California

M.S. in Computer Science

Los Angeles, CA

Aug. 2021 - May 2023

Nanjing University of Information Science & Technology

B.E. in Network Engineering

Nanjing, China

Sept. 2017 - June 2021

RESEARCH EXPERIENCE

RobotiXX Lab, George Mason University

Fairfax, VA

Advisor: Professor [Xuesu Xiao](#)

Aug. 2023 - Present

Project: Automatic Curriculum Learning (ACL) for [Verti-Wheelers](#)

- Created the *VW-Chrono* simulator and designed for wheeled mobility on vertically challenging terrain to algorithmically generate varied vertically challenging terrain for ACL
- Proposed *Verti-Selector*, a novel ACL framework that samples training terrain based on estimates of future learning potential (TD-error)
- Significantly enhanced navigation performance by 23.08% improvement in terms of success rate compared against a manually designed curriculum, vanilla Reinforcement Learning, and two baseline approaches
- Authored a research paper and submitted to IEEE International Conference on Robotics and Automation (ICRA) 2025

Human-to-Everything Lab, Boston University

Boston, MA

Advisor: Professor [Eshed Ohn-Bar](#)

May 2022 - Aug. 2022

Project: DeepVO - Visual Odometry with Deep Learning

- Utilized rotation matrix and geometric equation to acquire the absolute and relative poses of various images
- Reproduced *DeepVO* network architectures by integrating *FlowNetSimple* pretrained model with LSTM
- Improved the influence of epochs by 14.8% and hyperparameter k by 8.4% in the loss function of *DeepVO* network, using KITTI and nuScenes datasets, based on translation and rotation RMSE values
- Plotted trajectories on the predicted results from test sequences and compared them with original routes

Duke University

Durham, NC

Advisor: Professor [Rabih Younes](#)

June 2022 - Aug. 2022

Project: Cone Detection by Faster R-CNN

- Utilized *Albumentations* API to augment cone annotated dataset
- Reproduced Faster R-CNN model by integrating Region Proposal Network module with Fast R-CNN
- Optimized model by cross-entropy for classification and piecewise function for bounding box regression
- Improved the performance of Faster R-CNN model by 37.4% in terms of recall rate compared with YOLOv3 model on cone annotated dataset

PUBLICATIONS

(* indicates equal contribution)

Conference

- [C4] **T. Xu**, C. Pan, X. Xiao. “Verti-Selector: Automatic Curriculum Learning for Wheeled Mobility on Vertically Challenging Terrain,” in *arXiv preprint arXiv:2409.17469*, 2024 ([Video](#))

- [C3] X. Cai, J. Queeney, **T. Xu**, et al. “Pietra: Physics-informed evidential learning for traversing out-of-distribution terrain,” in *arXiv preprint arXiv:2409.03005*, 2024 ([Video](#))
- [C2] **T. Xu**, C. Pan, X. Xiao. “Reinforcement learning for wheeled mobility on vertically challenging terrain,” in *arXiv preprint arXiv:2409.02383*, 2024
- [C1] **T. Xu**, “Single-view and multi-view methods in marker-less 3d human motion capture,” in *Journal of physics: conference series*, 2019, pp. 012022

Journal

- [J1] X. Zhang, **T. Xu**, et al. “Multiple source domain adaptation in micro-expression recognition,” in *Journal of Ambient Intelligence and Humanized Computing*, vol. 12, no. 8, pp. 8371–8386, 2021.

TEACHING EXPERIENCE

Graduate Teaching Assistant

CS 262: Introduction to Low-Level Programming
CS 112: Introduction to Computer Programming

George Mason University
Jan. 2024 - Present
Aug. 2023 - Dec. 2023

- Designed student lab contents involving data structure and leaded the whole lab recitation
- Created grading scripts and managed a team of 6 undergraduate teaching assistants

WORK EXPERIENCE

Assistant of International Academic Interaction

Nanjing University of Information Science & Technology

Nanjing, China
Oct. 2019 - May 2020

- Assisted the supervisor to edit periodicals, process daily issues and emergencies, complete manuscript, review, and perform other corresponding responsibilities
- Performed record-keeping and feedback handling of international academic affairs in department

PROFESSIONAL SERVICE

Peer Reviewer

- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE International Conference on Safety, Security, and Rescue Robotics (SSRR)

TECHNICAL SKILLS

Programming Languages:

Python, C++, C, C#, Java, SQL, JavaScript

AI Frameworks:

Pytorch, TensorFlow, Keras

Cloud Computing:

AWS, Google Cloud Platform, Hopper

Robotics:

ROS, Chrono, NVIDIA IsaacGym, OpenAI Gymnasium

Version Control:

Git, Markdown