Tianxiao Ye

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EDUCATION

University of Wisconsin–Madison (WISC) **Sept 2023-May 2025(expected)**
M.S. in Electrical and Computer Engineering **MADISON, WI**
- Cumulative GPA: **3.9/4.0**

University of Illinois-Chicago (UIC) **Aug 2022-May 2023**
Exchange Student in Electrical and Computer Engineering **CHICAGO, IL**
- Cumulative GPA: **4.0/4.0**

Harbin Institute of Technology (HIT) **Sept 2019-Jun 2023**
B.E. in Robotics **CHINA**
- Cumulative GPA: **3.5/4.0**

PUBLICATION

Z,Hong., E,Hamdan., Y,Zhao., T,Ye., H,Pan., AE,Cetin. ***Wildfire detection via transfer learning: a survey.*** *Signal, Image and Video Processing(SLVP), (2024).*

WORK EXPERIENCE

Teaching Assistant, ECE 332 Feedback Control Systems, UW-Madison, USA **Fall 2024**
- Consistently contributed over 40 hours per week by grading assignments, leading discussions, proctoring exams, and providing comprehensive support on Piazza to enhance student understanding and course engagement.

Intern, SLAM R&D Group, Zhongke Zhichi, Hefei, China **Summer 2024**
- Designed a comprehensive outdoor multi-sensor fusion positioning solution.
- Collaborated with the team to explore the application of GR-Fusion SLAM in autonomous sweepers.

RESEARCH EXPERIENCE

WISC Autonomous & Resilient Controls(ARC) Lab **Sept 2023-now**
Advised by Prof. Xiangru Xu
- Independently developed a real-time nonlinear model predictive control system for unmanned ground vehicle (Clearpath JACKAL) trajectory tracking using ACADO and ACADOS, also using Ipopt solver, interfaced through CppAD and CasADi, achieving solver times of 5-6 ms with a mean squared error within 1%
- Explored trajectory tracking control methods for the Crazyflie drone, modifying the underlying code to seamlessly integrate and optimize the LQR controller.
- Independently set up the onboard visual-inertial odometry system OpenVINS, running on Jetson Orin Nano 8G with a ZED2i camera.
- Independently designed a comprehensive Gazebo simulation environment for data collection, which was utilized for training neural networks in a deep visual-inertial odometry (DeepVIO) system.

UIC Aecyy Lab **Dec 2022-May 2023**
Advised by Prof. Ahmet Enis Cetin
- Explore the feasibility of several classical models in the field of wildfire detection which contains Residual Neural Network V2(ResNetV2), Data-efficient, image Transformers (DeiT), EffecientNetV2, Big Transfer (BiT), MobileNetV3, Swin Transformer and compare their performance

by evaluating critical indicators, including accuracy, false alarm rate, true detection rate, detection latency.
- Built the dataset for training a wildfire detection neural network with over 14,000 training images.

HIT Robotics Lab **May 2020-May 2022**

Advised by Prof. Bo Huang and Prof. Jianwen Zhao

- Explored the integration of ORB-SLAM with YOLOv8 to reduce the influence of dynamic obstacles on mapping accuracy.
- Led field testing for a flexible pipeline robot specifically designed for the maintenance and overhaul of nuclear power plant equipment.

PROJECTS

Real Time Pedestrian and Vehicle Detection Using YOLOv5 **Jan 2024-Mar 2024**

- Developed a robust detection system for identifying pedestrians and vehicles, utilizing YOLOv5 and a custom-built model.
- Manually annotated over 5,000 images with LabelMe, contributing to an open-source database hosted on Roboflow.
- Applied transfer learning to fine-tune the model, achieving a remarkably high accuracy of 99.98% in detection tasks.

ROS Automatic Navigation Car using GMapping SLAM and Visual SLAM **Aug 2022-May 2023**

Graduation Project, University of Illinois at Chicago

- Built a multi-sensor fusion system based on the Robot Operating System (ROS) was developed and implemented, utilizing depth cameras and RGB cameras to build a 3D map and navigate challenging terrains.
- Using Rapidly-exploring Random Trees works by randomly generating a tree of potential paths from the vehicle's starting location, exploring the environment, and creating new paths by iteratively adding new nodes and edges to the tree.

Forest Fire Prevention Robot **Oct 2022-Jue 2023**

Graduation Project, Harbin Institute of Technology

- Decreasing the time of the RRT self explore algorithm by 12%. Decreasing GPU Usage by 4%.
- Tried some models for skeleton recognitio and integrate them on the robot via OpenCV.

AWARDS

College of Engineering Honor Award of WISC EXPO **Apr. 2024**

- Representing ARClab, won an Honorary Prize for a robotic arm that writes names and a vehicle that navigates around obstacles.

College of Engineering Best in Show Award of UIC EXPO **May. 2023**

- At the EXPO Corporate Summit, over five judges highlighted its research caliber and innovation.

Student Honorary Member scholarship of HIT STUDENT UNION **Oct. 2020**

- Independently designed the departmental emblem, which has been in continuous use since 2019.

SKILLS

Content Creation Skills: Overleaf; Microsoft Excel, Word, PowerPoint; Adobe Photoshop, Premiere Pro
Engineer skills: C&C++&Python; Linux&ROS1/2; Gazebo&Rviz; PyTorch&Tensorflow; Git&Github; AutoCAD&Solidworks&3DPrinting; Verilog; Matlab Toolboxes.
Embedded systems experience: JetsonOrinNano, JetsonNX, STM32, Raspberry Pi 4b
Languages: English (proficient user), Mandarin Chinese (native speaker)