

Tam (Jimmy) Tran

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EDUCATION

University of Boulder Colorado

M.S. in Robotics

Boulder, CO

August 2025 - Present

Princeton University

B.S.E. in Mechanical & Aerospace Engineering (GPA: 3.5)

Princeton, NJ

September 2021 - May 2025

WORK EXPERIENCE

Perception, Robotics, AI, and Sensing (PRAISE) Lab

Research Assistant

Boulder, CO

September 2025 - Present

- Utilizing lightweight foundation models for zero-shot generalization of robotic vision tasks onboard resource constrained platforms
 - Integrating RGB semantic segmentation with sensor data to provide navigational safety bounds
 - Encoding semantic information into state estimation pipelines to improve overall autonomy
- Used *AgIRoM* platform (previously developed in the Intelligent Robot Motion Lab at Princeton University) for the base autonomy stack

Pliant Energy Systems

Robotics Software Intern

Brooklyn, NY

May 2024 - August 2024

- Programmed software applications for full-stack development on board C-Ray, a robotics platform designed to traverse challenging 'wet' environments (sea, beach, ice) using undulating fins
 - C++, Python, MOOS-IvP (marine robotics middleware developed by MIT), ROS
- Leveraged Blue Robotics' open-source repository to develop a 3D sonar SLAM (Simultaneous Localization And Mapping) pipeline for improving localization uncertainties in DVL (Doppler Velocity) and Dead-Reckoning (IMU-based) sensor fusion
- Coded a MOOS-based driver interface for an Oculus sonar sensor
- Designed a communications app to broadcast sensor data to a satellite server

Intelligent Robot Motion Lab

Undergraduate Researcher

Princeton, NJ

January 2023 - Present

- Built *AgIRoM*: a UAV research platform for agile autonomous vision-based flight that extends the work conducted by the UZH Robotics and Perception Group on their *Agilicious* Platform
 - The quadrotor uses visual-inertial odometry for state estimation in GPS-denied environments
 - Build guide hosted on personal website referenced by researchers around the world
- Led a three-person team to implement a depth-based motion planning pipeline
 - The pipeline bridges data (sensors, telemetry, commands) within a larger robot ecosystem to allow for modular integration of high-level planner methods onboard *AgIRoM*
 - Successfully demonstrated in a live-flight navigation example using work conducted by graduate researchers in IRoM Lab onboard the quadrotor

PERSONAL PROJECTS & RELEVANT SKILLS

Mini-TARS w/ LLM Voice Prompting

December 2024 – May 2025

- Built a functional scaled-down replica of the robot TARS (from the movie *Interstellar*), equipped with voice commands and real-time interaction with a language model run on a local server

Software Skills: C++, Python, ROS, Docker, OpenCV, Pointcloud Library, SLAM, Gazebo, MOOS-IvP, MATLAB, Simulink

Hardware Skills: Flight Controllers, NVIDIA Jetson, Visual Inertial Odometry Cameras, Stereo Depth Cameras, Optical Flow Sensors, Sonar Sensors, IMUs, Computer Aided Design (Fusion360, PTC Creo), 3D printing, Soldering