Tam (Jimmy) Tran

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EDUCATION

University of Boulder Colorado **Boulder, CO**
M.S. in Robotics *September 2025 - Present*

Princeton University **Princeton, NJ**
B.S.E. in Mechanical & Aerospace Engineering (GPA: 3.5) *September 2021 - May 2025*

- *Certificate in Robotics and Intelligent Systems*

WORK EXPERIENCE

Pliant Energy Systems **Brooklyn, NY**
Robotics Software Intern *May 2024 - August 2024*

- Programmed software applications for full-stack development onboard 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 Robotic's 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
- Wrote a suite of unit-testing apps for onboard sensor and driver systems

Intelligent Robot Motion Lab **Princeton, NJ**
Undergraduate Researcher *January 2023 - Present*

- Built *AgIRoM*: a UAV research platform for agile autonomous vision-based flight extending 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

LEADERSHIP EXPERIENCE

Princeton University Robotics Club **Princeton, NJ**
Drone Team Lead, President *September 2021, May 2023*

- Led a team that developed a quadrotor controlled via hand gestures detected through OpenCV
- Revived club activity post-COVID, tripling membership during 1-year presidency

PERSONAL PROJECTS & RELEVANT SKILLS

Mini-TARS w/ LLM Voice Prompting December 2024 – Present

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

Software Skills: *C++, Python, ROS, Docker, OpenCV, Pointcloud Library, SLAM, MOOS-IvP, MATLAB, Simulink*
Hardware Skills: *Flight Controllers, NVIDIA Jetson, Visual Inertial Odometry Cameras, Stereo Depth Cameras, Optical Flow Sensors, Sonar Sensors*
Rapid Prototyping: *Computer Aided Design (Fusion360, PTC Creo), 3D printing, Soldering, Machine Shop*