

Conor Gagliardi

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Experience

NASA JSC ELECTRO-OPTICS LABORATORY

Optical Navigation Software Engineer Intern

May 2024 – Aug 2024 | Houston, TX

- Created tool suite for calibrating intrinsic parameters of Artemis II flight cameras
- Procured camera calibration datasets for testing
- Facilitated checkerboard and ChArUco board calibration tests for comparative analysis with star field calibration
- Networked with different branches at NASA to enable cross-division collaboration

NASA JSC SENSS LABORATORY

GN&C Development and Testing Intern

Jan 2024 – Aug 2024 | Houston, TX

- Tested LIDAR-based hazard detection, safe site identification, and safe site selection in real-time HWIL environment
- Developed test plan for evaluating machine vision-based GN&C algorithms
- Conducted experimental test campaign to evaluate active terrain relative navigation algorithms
- Generated scaled reference trajectories to emulate real-world operations
- Developed PID controller for manual gimbal control with auxiliary IMU
- Embedded electronics controller using Raspberry Pi UART and SBUS circuit design
- Designed & procured mechanical mounting systems for robotic platforms

NASA JSC HIVE LABORATORY

Autonomous Rover & Augmented Reality Spacesuits Intern

Aug 2023 – Dec 2023 | Houston, TX

- Developed an autonomous navigation system with obstacle avoidance for a rover
- Created a tessellated map to facilitate autonomous navigation using ROS and RGBD video feed
- Programmed wearable umbilical interface assembly to simulate life support systems
- Improved a telemetry stream that displays rover telemetry, location / GPS data, and speed
- Physically tested designs on a simulated Mars terrain field

UNIVERSITY OF OKLAHOMA – NSF REU

UAS GN&C Research Intern

Oct 2022 – Dec 2023 | Norman, OK

- Trained and used a YOLOv8 model for real-time UAS detection, tracking, and relative localization
- Used OpenCV for estimating position, velocity, and orientation from camera data
- Designed a formation control strategy for managing UAS swarm movements
- Validated control scheme via simulation & UAS flight tests (DroneDome at OU)
- Conducted real-world tests at the UASIPP site for further system performance

SPAS AT RIT, PROFESSOR D. DELGADO

Computer Vision Engineer

Oct 2022 – Dec 2023 | Rochester, NY

- Used PCA to extract “Eigenfaces” from images gathered by a facial recognition neural net
- Implemented Python & OpenCV for motion tracking and object detection in art exhibits
- Employed sparse and dense optical flow and delta-frames for motion detection

Education

Oregon State University

Robotics Ph.D. - Advisor: G. Hollinger
Robot Decision Making Lab

Rochester Institute of Technology

B.S. in Computer Science

SUNY Adirondack

Early College Career Academy in
Networking / Cyber Security

Cochise College

Intelligence Operations Studies

Skills

Programming Languages / Toolsets:

Python, ROS(2), Linux, Raspberry Pi, Ubuntu, Git, C++, C, SQL, Java, Lisp, Matlab, Simulink, Unreal Engine, Arduino, Gazebo

Frameworks / Libraries:

OpenCV, TensorFlow, PyTorch, SKLearn, NumPy, Pandas, Gazebo, HoloOcean, Microsoft Airsim, Flightmare

Professional:

Communication, Teamwork, Military Briefing, Research Proposal, Collaboration, Self-Motivation, Passionate

Leadership & Activities

NASA Intern Tours & Lectures Astronaut Chair

NASA Intern Fish Committee President
RIT Robotics, AI, and Space Exploration Clubs

OSU & RIT Div. 1 League of Legends E-Sports Athlete

Projects

Monocular Vision-Based Control of UAS Swarm (NSF-REU)

Gesture-based UAV Control via EMG+IMU (Undergrad)

SLAM Integration for Autonomous UAVs (Independent)

Experiment adding SMOTE to CNN Net Traffic ID (Undergrad)

Fashion MNIST Classifier w/ TensorFlow CNN (ML)

OpenCV Motion Detector / Object Tracking (Personal)

Experiments w/ PCA, Optical Flow, & Delta Frames (CV)