CONOR GAGLIARDI

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Experience

National Science Foundation - Research Experience for Undergraduates (NSF-REU)
Research Intern — May 2023 to Aug. 2023

- Developed a vision-based navigation and control system for a UAS swarm, each equipped with a single camera.
- Implemented a nonlinear filter using OpenCV for estimating position, velocity, and orientation from camera data.
- Used image fusion techniques to determine relative states of each UAS.
- Designed a formation control strategy for managing UAS swarm movements.
- Validated control scheme through simulation testing (Microsoft Airsim) and Quadcopter flight tests in lab conditions (DroneDome at OU).
- Conducted real-world tests at the UASIPP test site to further evaluate system performance.

Professor Dennis Delgado (SPAS at RIT)
Computer Vision Engineer - Studio Assistant — Oct. 2022 to May 2023

- Created a system to conduct Principle Component Analysis as a means to extract "Eigenfaces" from a pool of face images gathered using a facial recognition neural net processing of several films. This output an "average face" that is combined from the most common facial features within a given film.
- Utilized Python and OpenCV for motion tracking and object detection in order to provide Professor Delgado with a medium to create Projects and Creative Exhibits related to the relation of Computer Vision and people of color.
- Created a system for applying different tracking techniques to input videos, and exporting results to video files for further effects, modifying functionality as requested.

Cellec Technologies
Computer Science Coop — Aug. 2021 to Dec. 2021

- Created a program to normalize complex data sets from lithium ion battery testing equipment using the Python libraries NumPy, Pandas, and Matplotlib allowing for the transformation of massive data outputs from several battery testing machines with different output file formats into a standardized, coherent, and presentable form.
- By employing products from the software I produced, the company was able to be successful in three distinct presentations for grants and to continue receiving funding for ongoing projects.
- In order to help the business' scalability choices, I also worked on investigating potential AWS implementations and created white papers on the subjects of database and machine learning integration.

Special Operations Command - Central Command Deployment
Director of Intelligence / Lead Intelligence Analyst — 2020 to 2020

- Attached to SOCCENT and filled two roles;
  -Director of Intelligence for task force operations and activities in Central Asia and Egypt.
  -Lead analyst for intelligence related to Syria, Jordan, and Lebanon.
- In both roles, directly supported the Task Force Commander, US Embassy in Amman, and Special Operations Command - Central Command. Providing leadership with a timely and dependable source of intelligence analysis for the areas of my responsibility.
- Provided support to victims of the Beirut Port explosion in Lebanon.

Projects

Monocular Vision Based Drone Swarm (NSF-REU)

EMG Controlled Drone using Simulation (Bio-Robotics Independent Project)

Autonomous Mapping for Drone in Simulation (Personal Project)

Experiment adding SMOTE to CNN Net Traffic Identifier (Machine Learning Project)

Fashion MNIST Classifier using Tensorflow CNN (Machine Learning Project)

OpenCV Motion Detector / Object Tracking (Personal Project)

Experiments with PCA, Optical Flow, and Delta Frames for Eigenfaces, and Motion Detection (CV Project)

Education

Rochester Institute of Technology (NY) Computer Science — 2017 to Current

SUNY ADIRONDACK - Early College Career Academy program (NY) Networking / Cyber-Security — 2016 to 2017

Cochise College (AZ) - Intelligence Operations Studies — 2019

U.S. Gov. Top Secret Clearance with SCI

Activities

Participating in ICRA 2023 Autonomous Drone Racing Competition

RIT Robotics Club

RIT AI Club

RIT Division 1 League of Legends E-Sports Athlete

Awards

Early College Career Academy: Early College High School IT Computer Networking Program - Maureen VanBuren Memorial Scholarship and Award — 2017

Army Commendation Medal — 2020

Skills

LANGUAGES / TOOLSETS: Python, C++, Robot Operating System (ROS), SQL, Lisp, Java, C, Linux, Ubuntu
PRESENTATION: Public Speaking, Business Presentation, Military Briefing, Mandarin Chinese, Research Proposal
FRAMEWORKS / LIBRARIES: Microsoft Airsim, OpenCV, TensorFlow, PyTorch, SKLearn, Pandas, NumPy, Gazebo, Flightmare