Nicholas Gray

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Education

University of Central Florida, College of Engineering & Computer Science Orlando, FL
BS Computer Science, Minor in Mathematics *GPA: 4.0* August 2020 - May 2024
Student of the Burnett Honors College, Dean's List 2020, 2021

Relevant Coursework: Artificial Intelligence (Keras, PyTorch), Algorithms for Machine Learning (Python), Matrix and Linear Algebra, Calculus III, Algorithms and Data Structures I & II (C, Java), Computer Logic and Organization (C), Writing for the Technical Professional, Security in Computing (Python)

Skills

- Programming Languages: Python, Java (JDK 8 & 11), C, Flutter, SQL, React, HTML, Kotlin, Bash
- Python Libraries: NumPy, Pandas, SciPy, OpenCV, PyTorch, Keras, Scikit-learn, Matplotlib, Flask, PyQt, OpenMMLab
- Artificial Intelligence: Machine Learning, Deep Learning, Computer Vision, Objection Detection, Data Collection, Bounding Box Annotation, Distributed Training, Slurm
- Applications: Linux OS (Ubuntu, Arch), Microsoft Windows, Visual Studio Code, Eclipse, IntelliJ IDEA, GitHub, Git, LaTeX, Heroku, Kdenlive, Adobe Premiere Pro, LibreOffice Suite

Experience

Undergraduate Research Assistant - RTIS January 2021 - August 2022
Real Time and Intelligent Systems Laboratory of UCF

- Collaborated for over 1 year in a 2 person team researching the effects of sun glare on traffic sign detection for autonomous vehicles, releasing an image dataset with over 2000 images.
- Developed a two-stage computer vision algorithm for detecting sun glare in real time for autonomous vehicles.
- Calibrated and debugged point cloud camera sensors for an automated robotic system.
- Educated groups of 2-4 local high school students about computer vision, hardware mechanics, and the Robot Operating System (ROS) for autonomous vehicles.

Projects

GLARE Dataset - RTIS *Python, OpenCV, OpenMMLab* March 2021 - August 2022
Lead Researcher - Primary Co-Author

- Processed and annotated over 30 hours of driving footage into a 2,157 image dataset with a focus on traffic signs in sun glare.
- Researched the effects of sun glare as localized noise on current object detection architectures, with a publication submitted to *IEEE Transactions on Intelligent Transportation.*

UCF Garage Predictions *React, Python, Flask, Heroku* February 2022 - April 2022
Front-End Developer - Website Manager - Back-End Developer

- Designed the front-end using the React framework for a website predicting the future availability of parking garages at UCF.
- Managed the Heroku cloud platform for the website and implemented the Flask based back-end with account registration over HTTPS protocol.

HBTile - RTIS *Python, NumPy* January 2021 - August 2021
Lead Developer

- Developed a hexagonal tile, directional movement, turn based reinforcement learning environment based on strategy games and released to PyPi as a public package with documentation.
- Designed a Graphic User Interface (GUI) for testing initial environment configuration, including map size and shape, piece locations and directions, and health, movement distance, attack range, and attack strength for each piece class.

Awards

National Merit Scholarship May 2020
Recipient - National Merit Scholarship Corporation

- Recipient of the National Merit Scholarship, awarded to the top <1% of high school students in the United States based on standardized test scores, academic performance, extracurricular activities, and a written essay.
- Received the Benacquisto Scholarship from UCF, covering the full cost of attendance for 4 years.