Ethan Voth

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EDUCATION

University of Central Florida, Burnett Honors College — August 2021 – December 2024

Computer Science Major, 4.0 GPA — *Orlando, Florida*

- Awarded Benacquisto Scholarship as a National Merit Scholar
- Completed coursework in Data Structures and Algorithms, Object Oriented Software Development, Cybersecurity, Discrete Computational Structures, Programming Languages, Statistics, Calculus I-III Mathematics

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Java, JavaScript/TypeScript

Technologies and Frameworks: Git/GitHub, HTML and CSS, React, React Native, Flutter (Dart), Hugo

WORK EXPERIENCE

The MITRE Corporation — May 2023 – Present

Software Engineering Internship — *Colorado Springs, CO*

- Developed Python version of a legacy government acquisition algorithm for detecting satellites using optical ground-based telescope imagery in the rate track frame of reference
- Modified the algorithm to include synthetic rate tracking, which provided a 7% detection accuracy improvement
- Presented information about the algorithm prototype to be used in aiding government decisions concerning which software upgrades to fund for their observatory sites
- Worked with team to discuss improvements, assist with live telescope collect, and develop analysis methodology

Colorado School of Mines — June 2021 – August 2021

Computer Science Internship — *Remote*

- Learned statistics and optimization concepts necessary for an understanding of machine learning
- Gained insight into the research process by reading and editing technical papers

PERSONAL PROJECTS

Webbster – Astronomical Image Processing Program

Python (Astropy, scikit-image)

- Aligns multiple FITS images from the NASA JWST using their built-in WCS headers so that they can be layered
- Stretches the contrast of each layer using adaptive histogram equalization to reveal the detail in the raw data
- Colorizes each monochrome layer based on the properties of its NIRCAM filter and blends them into one image

Schema Notes – Cross-Platform Notes App

Dart (Flutter framework)

- Authenticates users to their account in the Firebase database through Google sign-in or anonymous sign-in
- Utilizes the real-time capabilities of Firebase to continuously sync notes and settings between a user's devices

GoPro Video Sync – Telemetry-Based Video Sync Tool

Python (MP4 parsing, scipy)

- Parses the GoPro Metadata Format (GPMF) track of an MP4 file, extracting gyroscope and accelerometer data
- Compares the sensor signals from two jointly-mounted cameras, using cross-correlation to determine the offset between the two videos, which can be used to sync the videos without relying on visual or audio cues

COLLEGIATE INVOLVEMENT

Knights Experimental Rocketry (supporting testing, operation of the club's 5 rocketry projects) — August 2023 – Present

UCF ICPC Programming Team Guest (competitive programming lectures and practices) — August 2021 – May 2022