

# Ethan Voth

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## EDUCATION

### University of Central Florida, Burnett Honors College

August 2021 – May 2025

*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