

# EVAN BRORBY

Optical Engineer

## CONTACT

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## EDUCATION

### University of Arizona

**BS - Optical Sciences and Engineering** | 2020-2024  
Honors Track | GPA: 3.90

**MS - Optical Sciences and Engineering** | 2023-2025

### American University of Rome

Rome, Italy | Summer Semester 2022  
| Art/Social Science courses

## RELEVANT CLASSES

### Optomechanics | OPTI 521

Solidworks, ZEMAX, kinematic mounts, tolerancing, point of failure analysis, Thermal expansion

### Optical communications | OPTI 530

Optical fibers, Optical amplification

### Radiometry | OPTI 306

Optical illumination systems, detectors, radiative transfer

### Optical design | OPTI 341

CODE V, Lens design, minimizing Seidel aberrations

### Geometrical optics | OPTI 201/202

Thin lens systems, excel models

## SKILLS

### PROGRAMS

Code V  
Zemax  
Microsoft Excel  
Solidworks  
OnShape  
Matlab  
Lightroom  
Photoshop  
Final Cut Pro

### GENERAL

Soldering  
Arduino  
Woodworking  
3d printing  
laser cutting  
leadership  
Cinematography  
Video editing  
Public speaking

## RESEARCH

### Ocean Optics Lab: Scripps Institution of Oceanography | Summer 2023

Expanding datasets in support of ocean color satellite missions

- Used **Matlab** to develop a physics-based algorithm to calculate an optical property of seawater ( $K_d$ )
- Generalized **Matlab** code to work on 200+ files with different variables and formats
- **Lab experience** setting up a spectrophotometer to measure absorbance and prepping particulate organic carbon filters
- Culminated in a final **15-minute research presentation**

## PROJECTS

### WATER-SAFE Microplastics Detection | August - Current 2023

Team Lead & Optical Engineer

A desktop device to determine the concentration, distribution, and size of microplastics in a water sample

- Developing a low-cost **fluorescence microscope** with a particle detection algorithm

### Optical Design for iPhone Telescope Adaptor | April 2023

Compact reflective telescope adaptor, 36x magnification, 1.8-degree Field of view, 80 mm aperture

- Used **Excel** for first-order design | Modeled, optimized, and performed tolerancing with **CODE V**

### Interactive Optical Model of the Human Eye | November 2022

Educational model to showcase the unique focusing system of the eye

- Used **Microsoft Excel** to determine the system specifications (focal lengths, image and object distanced, spacing). | Used **Solidworks** to design a custom rotating lens holder

### Cooper Union Summer Stem - "Heart of the City" | Summer 2018

An Interactive Fluid Dynamic Model of New York City

- Used **Adobe Illustrator** to design working cam mechanisms that were **laser cut** out of acrylic. | Used **Arduino** to program interactive audio and motion-activated water pump system | Used **Onshape** to 3D model figurines, heart, and other components for **3d printing**

## EXTRACURRICULAR

### Optics Outreach Video | December - July, 2023

Directed, shot, and edited an upbeat **outreach advertisement video** commissioned by the College of Optical Sciences

### Guest Speaker | March 17th, 2018

60 min. presentation at the "Amateur Astronomers Association of NY" showcasing astrophotography work at Kitt Peak National Observatory

## SCHOLARSHIPS | 2021-2024

Jack D. Gaskill Endowed Scholarship in Optical Sciences | ASML Optical Sciences/Optical | Engineering Scholarship | W.A. Franke Global Fellowship | Budd and Linda Parrish Endowed Engineering Scholarship