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### **FACULTY MENTOR**

Nicholas Antipa

### **PROJECT TITLE**

3D SLA Printing Optical Components

### **PROJECT DESCRIPTION**

This project is in collaboration with researchers at Scripps Institution of Oceanography. We have a brand new Form Labs 3 3D stereo lithography printer which is capable of producing 3D printed optical components. The aim of this project is to demonstrate the use of such technology for creating optical components that integrate into novel imaging systems such as 3D cameras, lensless cameras, and computational microscopes. You will work with Professor Antipa, Dale Stokes (SIO), and PhD students within the Antipa lab to identify interesting optical designs and explore the feasibility of producing these optics using the SLA printing method. As a goal for the end of Summer, you will build a lensless camera that utilizes optomechanics and optics, designed by you and the team to create a lens-free camera. Your method and instructions will be documented and published online so others can build their own lensless images using SLA printers. This is a very fun, interdisciplinary area where you will learn CAD, optics, signal processing, and image processing. This project can go in many directions depending on where your interest lies.

This project will be in person.

### **INTERNS NEEDED**

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### **PREREQUISITES**

- Required: Intro-level knowledge of optics (basic physics level is sufficient), strong interest in hands-on work and building custom hardware.
- Useful but not necessary: Experience with CAD, 3D printing, and/or signal processing.