

FACULTY MENTOR

Saharnaz Baghdadchi

PROJECT TITLE

Light-Matter Interactions and Optical Biosensors

PROJECT DESCRIPTION

Light interacts with matter in different ways, including through absorption and scattering. In this project, you will investigate different ways light interacts with matter and design experiments to measure and characterize these interactions. You will design a biosensor based on the interaction of light at different wavelengths with tissue.

This project will be in person.

INTERNS NEEDED

2 Students

PREREQUISITES

- ECE 107 for undergraduate students; strong interest in physics and math and curiosity about optics



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PROJECT TITLE

Optical Voice Recorder Using Digital Holography

PROJECT DESCRIPTION

In this project, you will investigate how the phase of light can be modulated electronically and with sound waves, how the changes in the phase of light can be measured using interferometry, how Fourier transform and spatial filtering are utilized in optics, and ultimately, how light can be used to record and reconstruct voice signals using digital holography.

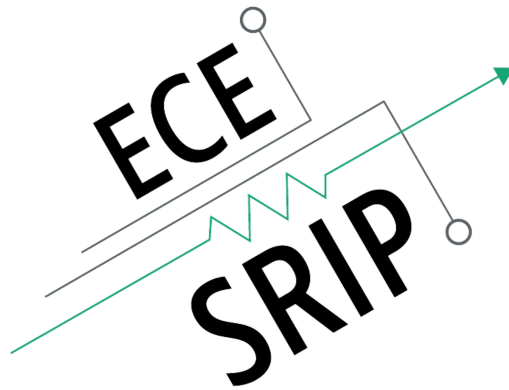
This project will be in person.

INTERNS NEEDED

2 Students

PREREQUISITES

- ECE 101 for undergraduate students; strong interest in physics and math and curiosity about optics



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PROJECT TITLE

Plasmonic Sensors

PROJECT DESCRIPTION

In this project, you will investigate the operation of plasmonic sensors both analytically and through optical simulations. You will also design and characterize (through simulations) your own plasmonic sensor.

This project will be remote.

INTERNS NEEDED

2 Students

PREREQUISITES

- ECE 107 for undergraduate students; strong interest in physics and math and curiosity about optics