## FACULTY MENTOR
Pamela Cosman

## PROJECT TITLE
Eye-Tracking for Reading Informational Text

## PROJECT DESCRIPTION
Description: We use eye-tracking glasses to study how people read and examine informational text, such as pages that have figures, flowcharts, and sidebars in addition to text areas.  The tasks involve video processing on the captured video of the scene and signal processing on the gaze data to extract metrics that characterize reading patterns.  The purposes include both improving the design of informational materials and furthering basic understanding of how people read and take in page information when learning.

Potentially one summer intern could be remote but at least one intern needs to be in-person because there will be some data collection with human subjects.
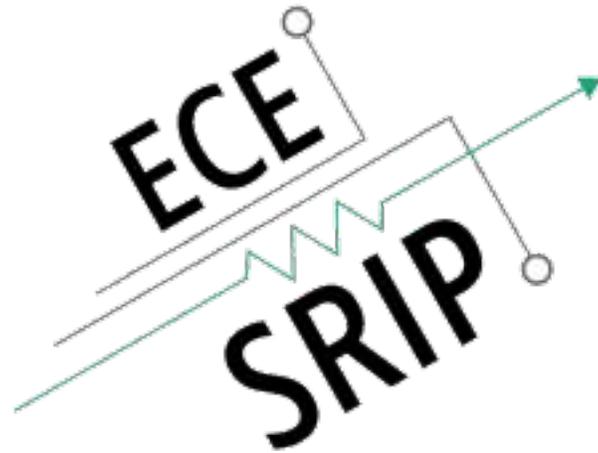
This project can accommodate both remote and in-person students.

## INTERNS NEEDED
2 Students

## PREREQUISITES
1.  Preferred but not required: signal/image/video processing and/or machine learning

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## PROJECT TITLE
Mobile App for Assisting in Physical Therapy

## PROJECT DESCRIPTION
Description: We are developing a mobile app that can track a person performing physical therapy exercises and provide guidance feedback.  Using existing algorithms to estimate the 3D body pose over time, we compare the pose with certain targets (e.g., joint angles), and aim to show the user an avatar with guidance information tailored to the user.  This project has several avenues depending on student interest, including extending to hand pose estimation and feedback for hand exercises, streamlining the pipeline to increase the frame rate, focusing on the user interface, or enabling use with items such as exercise bands or hand exercise putty.
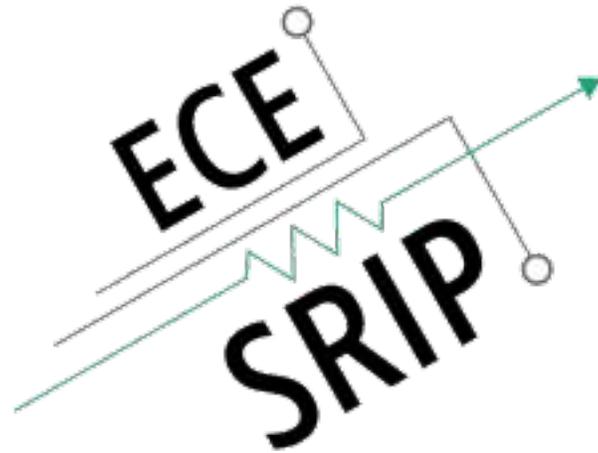
This project can accommodate both remote and in-person students.

## INTERNS NEEDED
2 Students

## PREREQUISITES

1.  Computer vision or user interface design or machine learning

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## PROJECT TITLE
VR Training for Conversational Engagement

## PROJECT DESCRIPTION
Description: Young adults with autism spectrum disorder (ASD) have a high unemployment rate due to social communication deficits despite often having strong technical skills.  This project focuses on developing a VR training tool which measures conversational engagement cues such as head nodding and gaze behavior (e.g., looking at the virtual interviewer's eyes) in the context of a VR interview.  The goal is to characterize engagement behavior patterns for individuals with ASD and neurotypical individuals, to enable automated coaching to improve social communication skills.  This project is in conjunction with an NSF Future-of-Work grant.

This project can accommodate both remote and in-person students.

## INTERNS NEEDED
2 Students

## PREREQUISITES
  1.  Preferred: Python, Unity, Blender