

**FACULTY MENTOR** Cosman, Pam

**PROJECT TITLE** Image/video color and visibility restoration

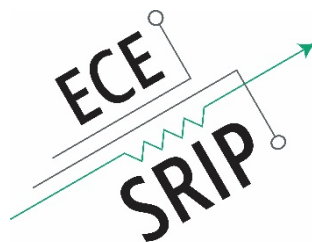
### **PROJECT DESCRIPTION**

Images and videos captured in turbid media such as fog, haze, a sandstorm, or water are degraded because light is scattered and absorbed, and colors are changed because different wavelengths may be attenuated differently. We are working on methods to restore color and contrast for such images. The project will include algorithm development and testing, as well as expanding our dataset by capturing (a) outdoor images taken from the same location on foggy and non-foggy days, (b) outdoor videos with different objects moving, such as pedestrians, cars, etc., on foggy days, and (c) images/video underwater and out of water with known test objects. May and early June tend to be foggy in La Jolla, so the intern must be available to work during that period.

**INTERNS NEEDED** 1 MS Student OR 1 Undergrad Student

### **PREREQUISITES**

Knowledge of Matlab required, image processing background (161c or 172 or 253) preferred but not required.



**FACULTY MENTOR** Cosman, Pam

**PROJECT TITLE** Predicting video packet importance

### **PROJECT DESCRIPTION**

When video is compressed and packetized, some of the packets are much more visually important than others. The importance of an individual packet can be determined either by decoding the video after having dropped that packet and seeing how observers rate the glitch, or by using computable metrics such as VQM (video quality metric). This project aims to use neural network or other approaches to predict subjective scores or VQM scores for compressed video packets. Ultimately this information could be used to assign unequal error protection to video packets.

**INTERNS NEEDED** 1 MS Student AND/OR 1 Undergrad Student

### **PREREQUISITES**

Knowledge of C/C++, some background on classification and image processing.

