

Victor Miller  
Electrical Engineering Department

Mentor: Dr. Cheryl Li  
Mechanical Engineering Department

### **Developing and Integrating a Control Program for a Remotely Operated Vehicle**

The objective of this SURF project was to create a user interface and control program for an Aquatic Remotely Operated Vehicle (ROV) using LabVIEW and Arduino. The overall desired outcome of this project was to allow an operator to intuitively control the ROV's movement in normally inaccessible underwater environments through utilization of a gaming joystick. Further functions include manipulating the facing direction of an on-board camera and viewing and recording real-time video feedback. The LabVIEW control program was successfully developed and implemented, allowing for basic control of all current functionalities, as well as serving as a user interface which displays relevant data regarding the ROV. It is desired for additional sensory apparatuses such as salinity, temperature, and dissolved oxygen sensors to be added to the ROV as a part of future work to enhance its data gathering capabilities. Once completed, this ROV will serve as a supplementary educational tool for college level programs teaching Marine Biology and Geography.