

FACULTY MENTOR

Thode, Aaron

PROJECT TITLE

Embedded real-time classification of whale and noise signals on a marine mammal bioacoustic tag.

PROJECT DESCRIPTION

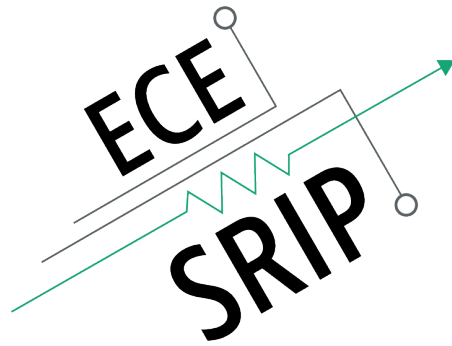
Student will help program a C module for a commercial underwater bioacoustic tag (Acousonde) that will take both incoming acoustic and auxiliary (i.e. pressure, accelerometer) data streams, detect and identify whale calls and seismic airgun signals (rhythmic impulsive signals), and output the data to a ARGOS satellite transmitter. Benchmarking with audio playbacks will also be conducted.

INTERNS NEEDED

1 Upper level BS or MS student

PREREQUISITES

All lower level courses, plus 175A,B (machine learning) and ECE 156 (signal processing), or practical equivalent(s). Must know C (Gnu version) and have some familiarity with embedded systems design for small form factors and low-power electronics. Familiarity with MATLAB, Eclipse IDE with CDT plugin, is a plus but not required.



FACULTY MENTOR

Thode, Aaron

PROJECT TITLE

Design and assembly of an autonomous underwater acoustic recording system

PROJECT DESCRIPTION

A student will help prototype, assemble, and test an autonomous underwater acoustic recorder by combining a hydrophone, an alkaline battery pack, and existing commercial data acquisition boards onto internal mounting hardware to fit into two kinds of pressure cases. Some analog active circuit design may be needed.

INTERNS NEEDED

1 Upper level BS or MS student

PREREQUISITES

All required lower level courses plus ECE 163,164,165 (or equivalent training), with ECE 156 (sensors and networks) a plus. Prefer some experience with mechanical design (e.g. Solidworks) and assembly, especially for waterproof pressure cases with internal mounting hardware. Prefer some familiarity with embedded systems design for small form factors and low-power electronics.