Proposed Senior Project Listing

Sponsor: NAVSEA Port Hueneme Division

Description: For more than half a century, Naval Surface Warfare Center, Port Hueneme Division has been at the forefront of engineering and product support for the U.S. Navy's combat and weapon systems. Based in Southern California, the Center employs almost 2,500 Government Civilian engineers, technicians and logisticians and conducts approximately $750M a year in sponsor based research, development, test and evaluation activities. With unique assets including waterfront laboratories, the remotely piloted Self Defense Test ship and the Mission Package Support Facility, NSWC Port Hueneme is the premier In-Service Engineering Agent and product life cycle support authority for the Country.

Project: Autonomous Rescue Vessel

This multidisciplinary project will involve the design and fabrication of an autonomous rescue vessel that can be deployed from a ship, auto inflate; generate steam and electromagnetic signature such that it can navigate to safety while being easily found by rescuers. Based on existing shipboard auto inflating life rafts, this next generation system will feature mesh communication systems, swarming ability and artificial intelligence for decision support tools. Student researchers from across the engineering disciplines can help define the requirements, tackle specific areas of interest, conduct literature reviews on existing and proposed subsystems and design and test prototype sub-sections or scaled samples.

This multidisciplinary project can be broken down into specific elements based on student teaming to include: 1) improved inflatable design to maximize cargo (people and equipment), 2) autonomous control and navigation systems to safely navigate away from danger and toward rescue opportunities, 3) mesh networking and communication systems to include electromagnetic signature (both passive and active), 4) life-support systems to include heat generation.

Sample images of commercially available self-inflating rescue rafts: