



# CAREER: Autonomous Underwater Power Distribution System for Continuous Operation

- Nina Mahmoudian
- Purdue University
- <http://engineering.purdue.edu/mahmoudian/>
- [ninam@purdue.edu](mailto:ninam@purdue.edu)
- CNS-1921060

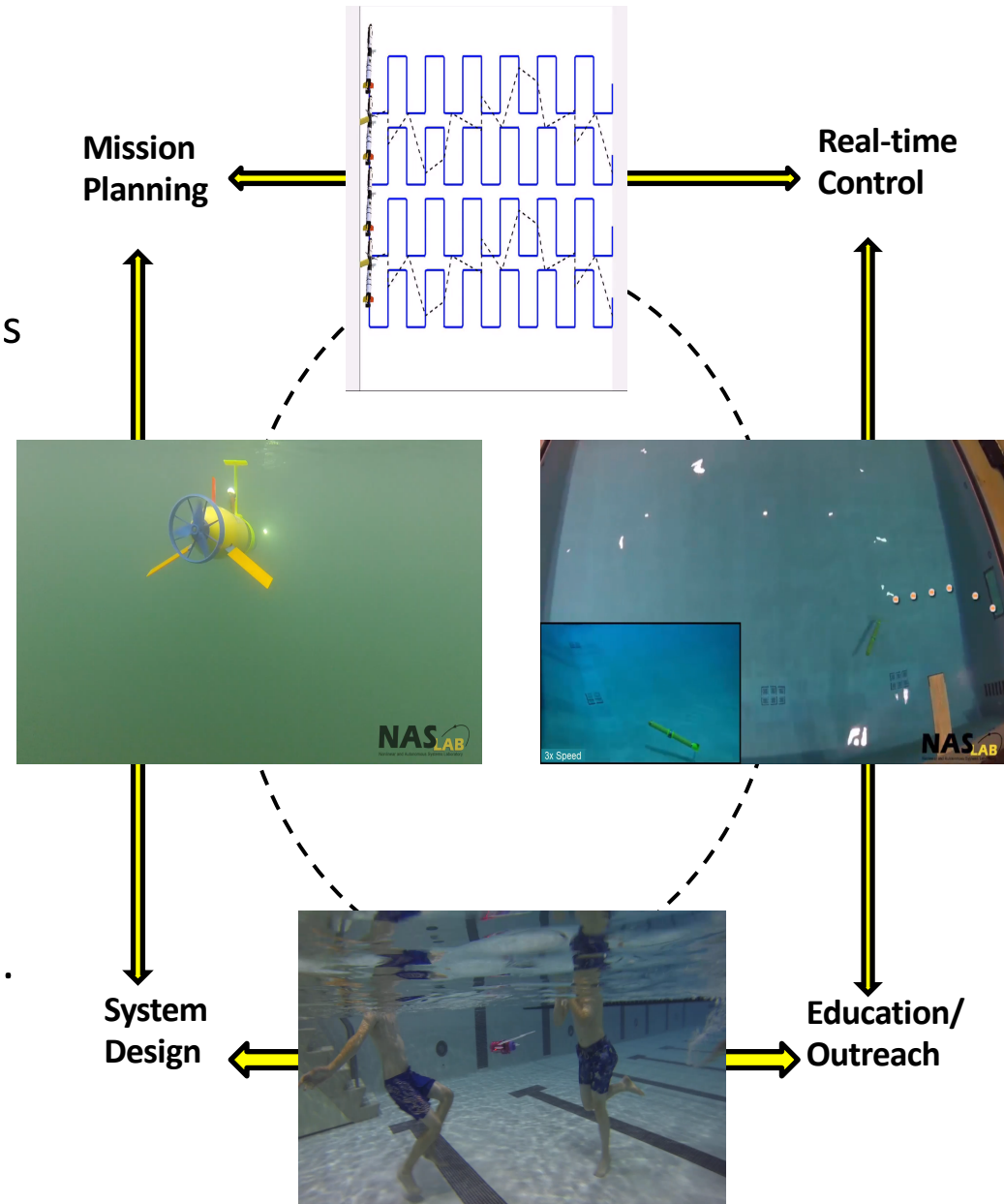
# Description

## Goal

- ❑ Collective power management for long-term multi-robot operation.
- ❑ Effectively respond to energy needs in the presence of dynamic conditions and environmental uncertainty.

## Approach

- Task and resource allocation model for continuous operation mission planning.
- Scalable charging mechanism for power delivery system for undersea.
- Efficient path planning and coordination strategy to accomplish mission plan.



# Findings

- Developed mission planning strategy for automated energy cycling using evolutionary algorithm.
- Designed an adaptable docking system and evaluated control methods to support docking maneuvers.
- Studied the advanced maneuvering capability of internally actuated AUVs.
- Engaged 201 middle and high school students in week-long summer program including 106 girls.
- Developed Autonomous Systems course and offered to 72 undergrad and grad students.

