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**Persistent Operation of Mobile Robots**

In Nonlinear and Autonomous Systems Lab, we are developing theoretical, computational, and experimental tools for long-term operation of network of autonomous vehicles in complex environments. The application is for air, ground, and sea robots.
Challenge

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

The key is lowering deployment and operating costs, while also increasing efficiency, endurance and persistence.

Our approach includes:
• task and energy routing scheduling,
• efficient path planning and coordination,
• low-infrastructure platforms.
Task and Energy Routing Scheduling

Mission planning architecture for persistent operation to

• place and uses static charging stations

Or

• find the rendezvous positions of mobile chargers

With primary objective: minimize the energy spent
Low-Infrastructure Platforms

• Reducing the cost of deployable AUVS while increasing maneuverability and capability of operation

• Developing experimental test-bed including a mobile charger capable of autonomous docking and wireless energy transfer for marine settings.

ROUGHIE: Research Oriented Underwater Glider for Hands-on Investigative Engineering
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<th>NAME</th>
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<tr>
<td>Nathan Beyers</td>
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<td>Donna Fard</td>
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