



Cornell University  
Autonomous Underwater Vehicle

# Cornell University Autonomous Underwater Vehicle

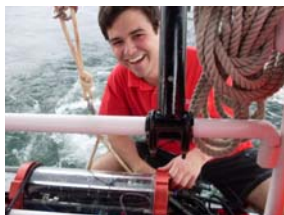


Erin Fischell  
Team Leader



Cornell University  
Autonomous Underwater Vehicle

# CUAUV



CU AUV
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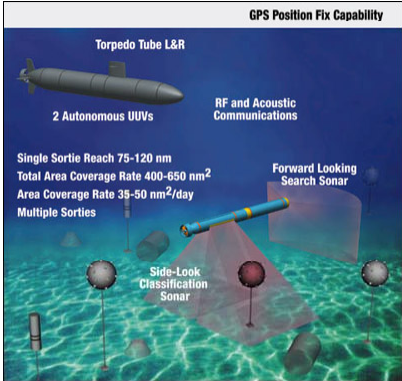
## Applications for AUVs

Oceanographic Research

Military

Homeland Security

Offshore Industry



**GPS Position Fix Capability**

Torpedo Tube L&R


2 Autonomous UUVs

RF and Acoustic Communications

Single Sortie Reach 75-120 nm  
Total Area Coverage Rate 400-650 nm<sup>2</sup>  
Area Coverage Rate 35-50 nm<sup>2</sup>/day  
Multiple Sorties

Forward Looking Search Sonar


Side-Look Classification Sonar



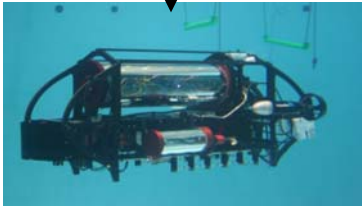
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## CUAUV History

- Founded in 1999
- BRAIN: Big Red Autonomous Intelligent Navigator
- 8 Vehicles, #9 in progress
- 10 Competitions
- 2 Competition Wins: 2003 and 2009
- 8 Static Design Wins



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## CUAUV Culture

- Recruiting
- Design focus
- Project Ownership
- One year design cycle



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## Team Composition

- 43 Students
- 3 colleges
- 16 different majors
- 10 engineering majors
- Equally distributed by year

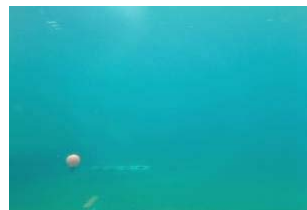


## Design Cycle

- Less than one year:  
August-May
- Requirements set  
early
- Three levels of design  
reviews



## AUVSI/ONR AUV competition



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## Visual Mission Elements

This slide displays six distinct visual mission elements from an underwater vehicle's perspective. The elements are arranged in two rows of three. The top row includes: a white and orange buoy floating in clear blue water; a red scale bar placed on a dark, rocky seabed; and a yellow line extending across the water column. The bottom row includes: a green rectangular frame resting on a sandy or silty bottom; a white scale bar with red markings on a dark seabed; and a red rectangular frame on a dark seabed.

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## Research in Cayuga Lake

This slide illustrates research activities in Cayuga Lake through four photographs. The top-left image shows a wide view of the lake with a small black arrow pointing to a specific spot on the water's surface. The top-right image is a close-up of the AUV's red and black frame, showing a red buoy and yellow lines. The bottom-left image shows a white boat named 'MENDEL' docked at a wooden pier. The bottom-right image shows a diver in blue gear operating the AUV in the water.



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## My team experience

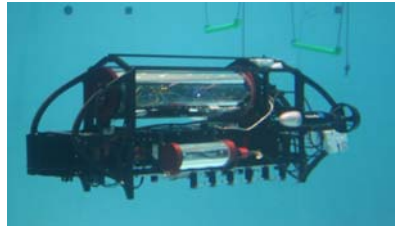
**Proteus: 2006-2007**



**Triton: 2007-2008**



**Nova: 2008-2009**



**Akula : 2009-2010**



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## Questions?

