

Co-Multi-Robotic Exploration of the Benthic Seafloor

New Methods for Distributed Scene Understanding and Exploration in the Presence of Communication Constraints

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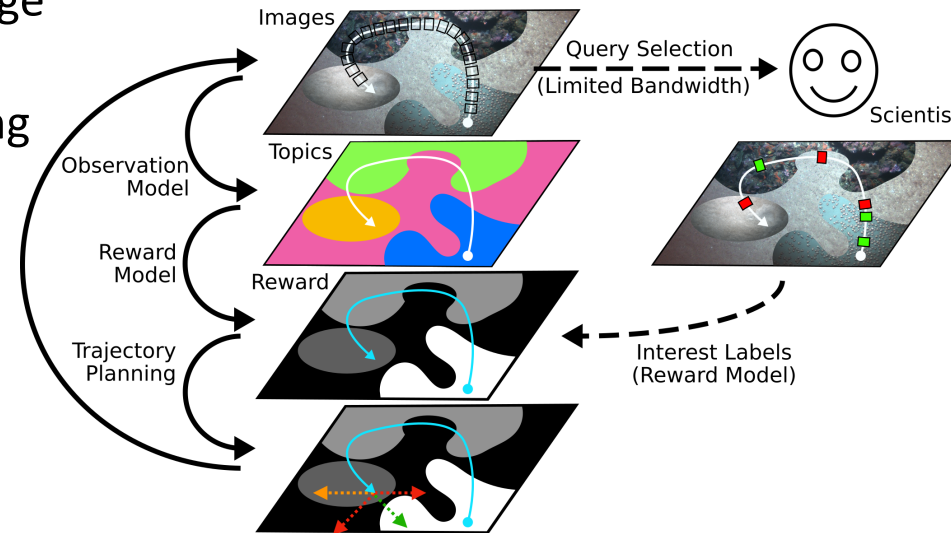


Challenge

- Interactive exploration with vision guided robots => huge bandwidth requirements
- Ocean scale => coordinating multi-robot teams

Solution

- Distributed unsupervised scene understanding => learn latent representation
- Use latent representation to enable active reward learning for modeling science interests
- Informative path planning with learned reward function

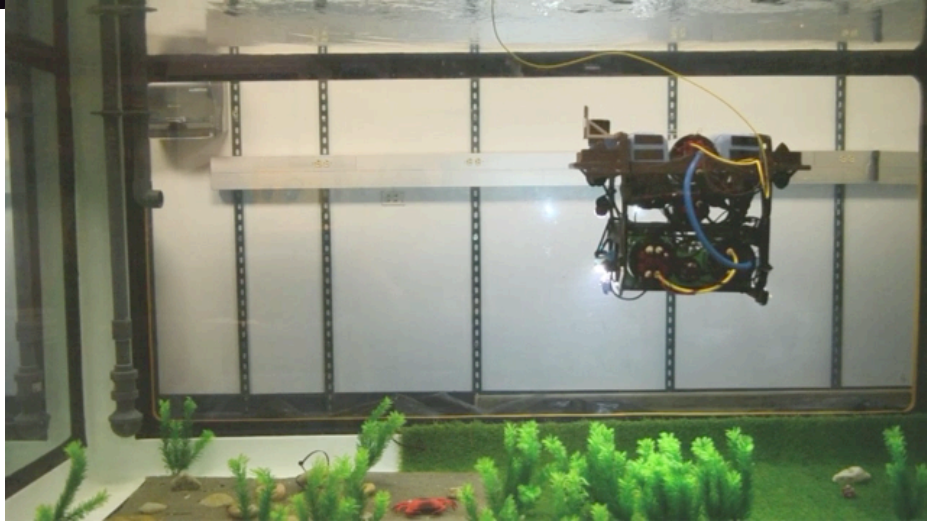


Scientific Impact

- Enabling interactive exploration with a team of vision (or other high dim. observations) guided robots in communication constrained environments.

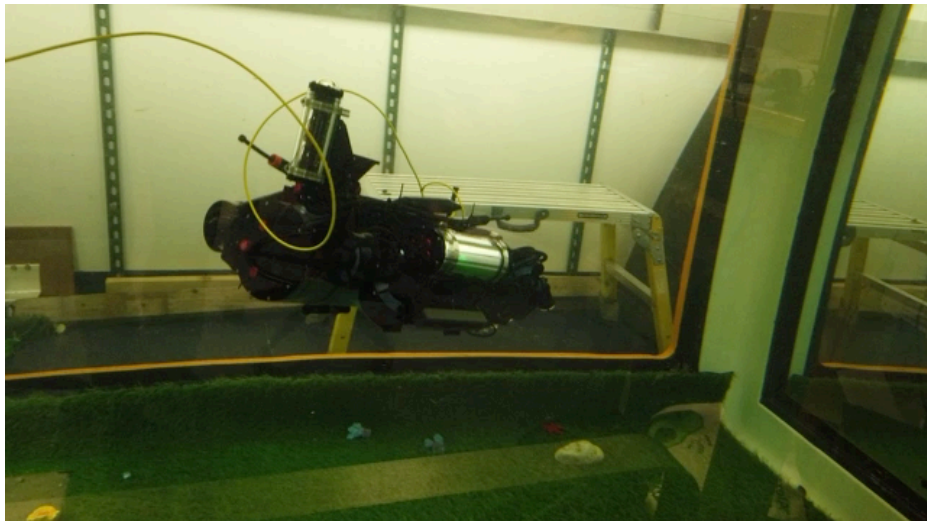
Broader Impact

- Ocean and space exploration
 - Tech transfer to NDSF Sentry AUV
- Collaboration with marine ecologists
- Training graduate, undergraduate and high school students



Tank tests

Field trials



WARPAUV

Tech transfer to
NDSF's Sentry AUV

