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Robot Mission Rehearsal and Replay using the Autonomous
Unmanned Vehicle (AUV) Workbench
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<https://savage.nps.edu/AuvWorkbench>

The Autonomous Unmanned Vehicle Workbench (AUVW) supports physics-based mission rehearsal, real-time task-level control of robot missions, and replay of recorded results in support of unmanned underwater, surface and air vehicles. Geographic information system (GIS) layers, a 2D geographic plot and an X3D visualization capability provide operators with multiple views and an improved understanding of robot operations. Extensible 3D (X3D) graphics and other open data standards are used throughout, implemented using open-source software for maximum repeatability and usefulness. Software version control, autoinstaller, online software update capability, bug tracking and an archived mailing list enable group usage of shared assets.

Attendees are encouraged to bring laptop computers in order to install and run the AUV Workbench. We will build and rehearse a wide variety of robot missions, and also examine recent robot-telemetry results for air, surface and underwater missions. Recent NPS student studies and theses from a large academic research archive will also be summarized. We will document the development process for configuring and adding new robot types, both for rehearsal and replay. New features include improved mission editing, project archiving and generation of mission reports. We will also show how to create an example mission and apply metadata when analyzing results, use the Savage X3D model archive, and provide a brief introduction to learning X3D Graphics.

Currently active research endeavors will also be summarized and discussed. We hope that use of these many capabilities will eventually grow to support broad sharing of resources and research results among the underwater robot community.