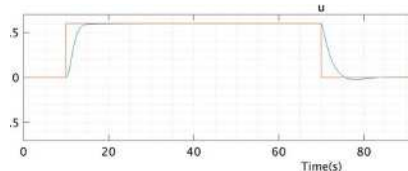
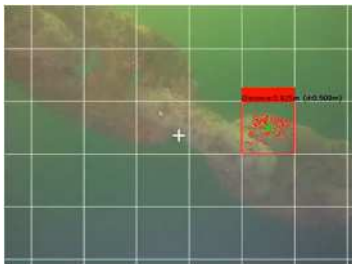


Name UCHIHORI Hiroshi	Job Title Professor	Area of Expertise Underwater Robotics
1. Main Research Topics ① Research for Underwater Vehicle Dynamics and Control The motion of underwater vehicle is described by non-linear six-degree-of-freedom rigid body equations of motion. Furthermore, the coefficients of fluid dynamics force around the body must be determined by water tank tests. However, the hovering type underwater vehicles which have a frame type complex structure have not been fully modeled. So we are conducting the research about the modeling method and the control system for them.  Example of simulation result of the vehicle control		
② Research for Guidance and Control using Underwater Imaging When visual inspection of underwater structures using an ROV, the target object is tracked by visual navigation and control by human pilot using underwater camera, however, it requires high level skill to maintain a certain distance from the target while being influenced by tidal currents. For this reason, we are conducting research into semi-automatic target tracking using a stereo camera to recognize target image so that anyone can easily operate the vehicles. This research was selected for the Cabinet Office's 2024 AUV Demonstration Project, and the sea trial was conducted for the mooring chain.  Semi-automatic tracking mooring chain		
③ Research for Low Cost AUV Currently, ROV which has tether cable is mainly used for the underwater operation, furthermore, AUV have come into practical use, however, AUV is expensive. So we have started the low cost AUV research.		
2. Keywords Underwater vehicle, ROV, AUV, Guidance and Control		
3. Remarks and Websites Underwater Vehicle (ROV and AUV) have become an essential technology for inspecting the underwater structure like an offshore wind farm. Our research can contribute to spread of underwater vehicle instead of the human diver operation which is dangerous and high cost. researchmap: https://researchmap.jp/hiroshi-uchihori Laboratory: https://robotics-mech-nagasaki-univ.conohawing.com		