Abstract

Amr A. Mohamed Mohamed Hassan

AUV Motion Analysis and Control

Autonomous Underwater Vehicle (AUV) is considered one of the most advanced intelligent systems that require high level of intelligence of complete self-decision support system where no communication can be established with it under the water surface. Computational Fluid Dynamics (CFD) is necessary to determine the effect of forces that are subjected to the AUV such as drag force, pressure force, lifting force and viscous force. Determining the shortest path using a heuristic search technique that achieves optimal power consumption based on these forces is of major importance where the objective function of the searching algorithm will target the best uses of the built-in power source which make it operate underwater for the longest possible time. This will help in tasks such as reconstruction of the underwater environment and inspection tasks which require long time.