

ABSTRACT:

This paper describes a control scheme that provides an efficient way to design a Fuzzy Logic Controller (FLC) for the unmanned underwater vehicle (UUV). The proposed method, known as the Single Input Fuzzy Logic Controller (SIFLC), reduces the conventional two-input FLC (CFLC) to a single input single output (SISO) controller. The SIFLC offers significant reduction in rule inferences and simplify the tuning of control parameters. Practically it can be easily implemented by a look-up table using a low cost microprocessor due its piecewise linear control surface. To verify its effectiveness, the control algorithm is simulated using the Marine Systems Simulator (MSS) on the Matlab/Simulink® platform. The result indicates that both the SIFLC and CFLC give identical response to the same input sets. However SIFLC requires very minimum tuning effort and its execution time is in the orders of two magnitudes less than CFLC.