

Master 2016

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Diver Detection and Estimation for Harbor Security Using Adaptive Beamformer.

ABSTRACT - Masterthesis

The aim of the Master's thesis study is to detect and estimate the diver position for the security of harbor using adaptive beam former. Harbor security in present environment poses a great threat and security is considered to be a prime important task.

Harbors poses many distinct distortions in the analysis of data from sonar in the form of permanent concrete structures, difficulty in detecting divers beneath the hull of a ship, signals obtained from small fishing boats and many more. For the precise identification of targets, we need a perfect solution that classifies these distortions at one hand and also suppress the unwanted or already known targets from the received data. This helps in precision of the sonar data and quick analysis.

Beam formers are used to filter the arriving signals spatially. Accentuating or attenuating signals that arrive from specific directions helps you distinguish between signals of interest and interfering signals from other directions. Adaptive beam formers enhances the detection precision in the form of feedback of previous scanned data.

The thesis work is carried out in Institute of water acoustics, sonar engineering and signal theory (IWSS) Hochschule Bremen, Germany.