

EPSRC CDT in Distributed Algorithms

PhD Project: Machine Learning Inference of the Ocean Environment from Acoustic Data

University of Liverpool

PhD Student: Finn Henman

Project Partner: Dstl

Supervisors:

Dr Stewart Haslinger, University of Liverpool

Dr Jason Ralph, University of Liverpool

Dr Duncan Williams, Dstl

Project Description

The use of machine learning models to determine physical quantities of a complex underwater environment via acoustic data is relatively underdeveloped. Traditionally, research in underwater acoustics has mainly been applied for the use of SONAR systems for communication, long-range sensing, target detection, marine wildlife monitoring and exploration. Recent breakthroughs in data mining and analysis, supported by powerful super-computing capabilities, promise exciting new possibilities for the implementation of machine and deep learning approaches to develop methods to extract and predict important properties of the ocean that are relevant to underwater acoustics. The focus of the project is on machine learning models that can use acoustic data collected by in-situ sensors and remote sensors, modelled data, historical data, and data from other sources, to infer acoustically relevant properties of the ocean environment, from which to build an up-to-date and accurate representation of the acoustic environment for any sonar deployment.

For more information please go to the [EPSRC CDT In Distributed Algorithms](#) website.