



An Investigation into Trust and Reputation Frameworks for  
Autonomous Underwater Vehicles

Thesis submitted in accordance with the requirements of  
the University of Liverpool for the degree of Doctor in Philosophy by

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# Notations

The following notations and abbreviations are found throughout this thesis:





# Preface

This thesis is primarily my own work. The sources of other materials are identified.



# Abstract

As Autonomous underwater vehicles (AUVs) become technically more competent, and fiscally more attainable, their use has been applied to a great many areas within defence, commercial and environmental areas of concern. Increasingly, these applications are tending towards utilising independent collective behaviour of teams or fleets of these platforms.



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## Chapter 1

# Introduction





## Chapter 2

# Background on Trust and its Applications to MANETs



## Chapter 3

# Background on Maritime Uses of Autonomous Systems and the Maritime Communications Environment



## Chapter 4

# Trust in Autonomous Systems of Systems for Maritime Defence Applications



## Chapter 5

# Strategies for Multi-Domain Trust Assessment





## Chapter 6

# Modelling and Analysis of Collaborative Node Kinematic Behaviuors in Underwater Acoustic MANETs



## Chapter 7

# Comparative Analysis of Multi-Comain Trust Assessment in Collaborative Marine MANETs



# Bibliography