

An Investigation into Trust and Reputation frameworks for AUV applications.

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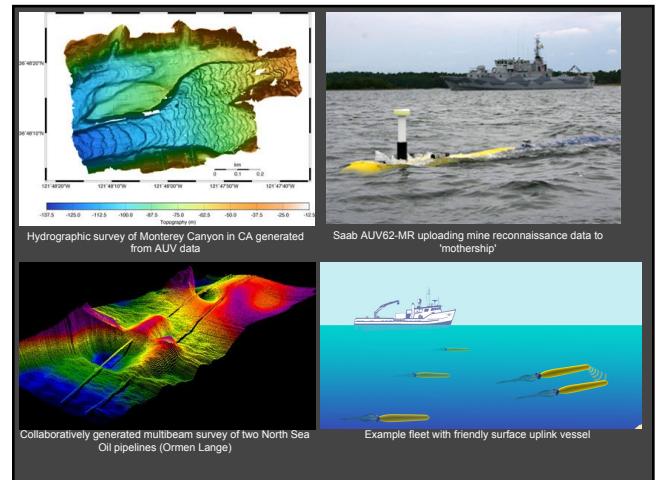


Autonomous Underwater Vehicles AUVs



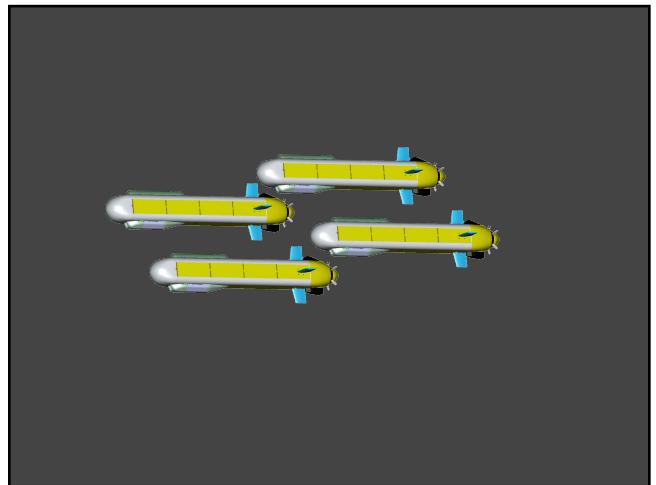
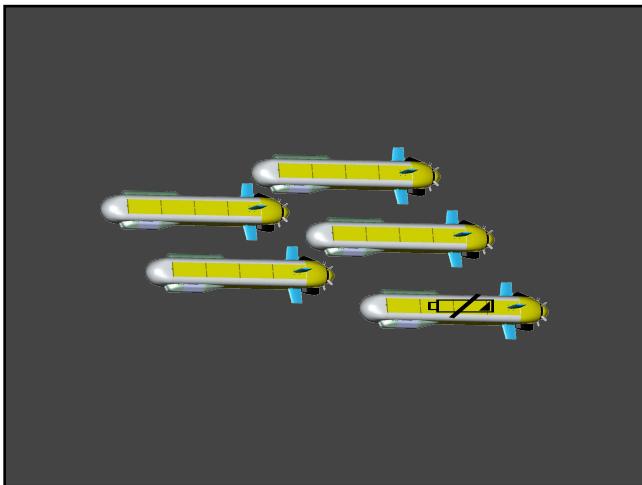
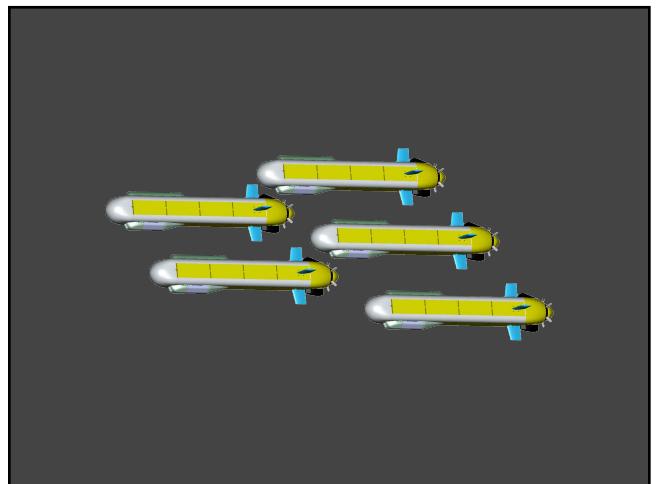
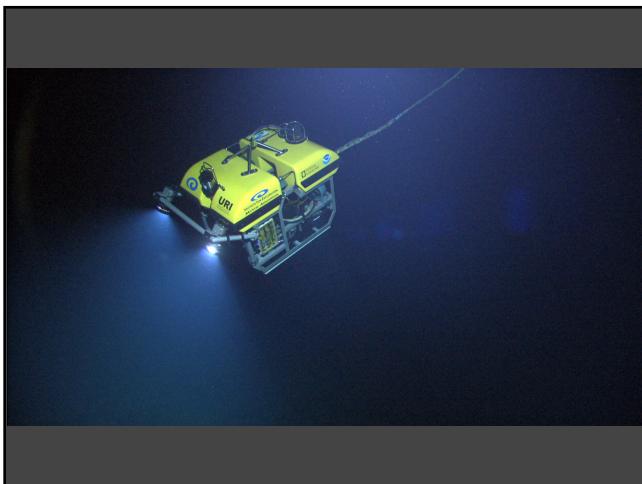
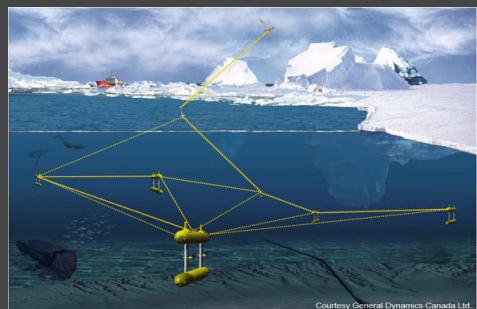
Example UAV Operations

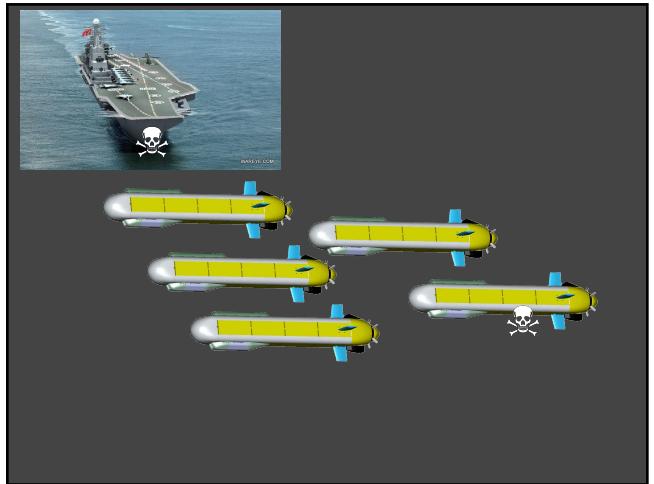
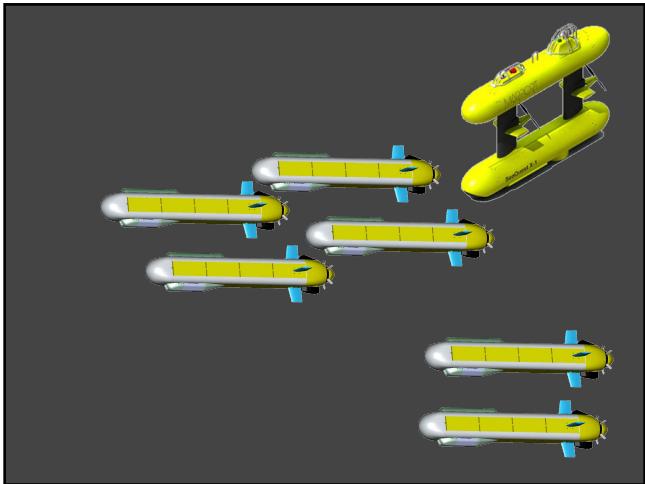
- Swarming Behaviours
- Human-Guided Fleets
- Inter-dependant Task-Operation



Trust And Reputation for Fleets of AUV

- Why is Trust Important?
Avoids compromising of mission, AUVs etc
- Trust mechanisms
Direct, indirect, recommendations
- Reputation
How can we trust surface platforms of which we have no experience?

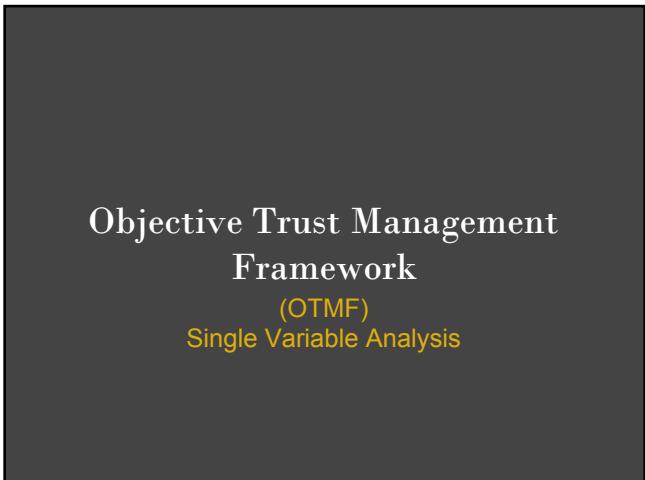




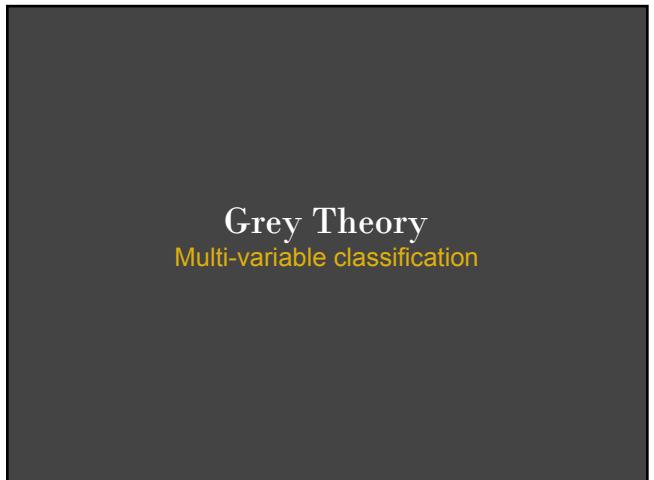
What can we learn from MANETS?

- Existing Threat Modelling Techniques and conventions
- For Example: CIAAA
 - Confidentiality
 - Integrity
 - Availability
 - Authentication
 - Anonymity

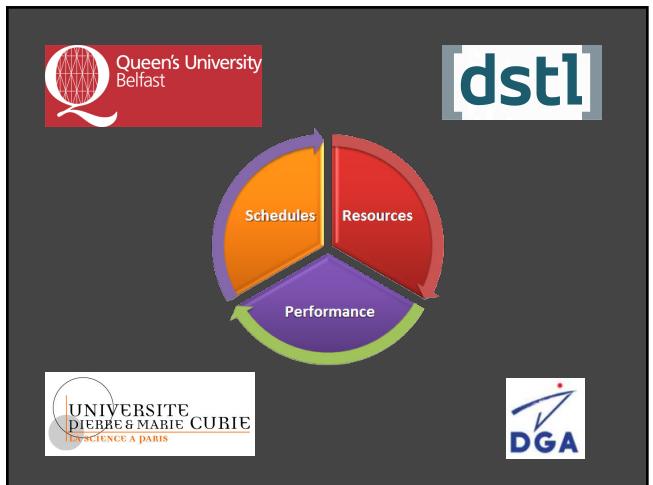
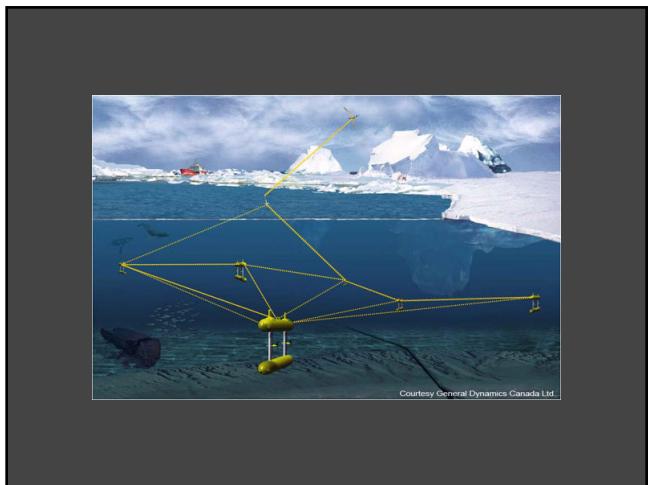
Existing Threat Combatting systems and protocols, etc



Objective Trust Management
Framework
(OTMF)
Single Variable Analysis



Grey Theory
Multi-variable classification



Development Considerations

- Threat Modelling

Development Considerations

- Threat Modelling
- Metric-set Development

Development Considerations

- Threat Modelling
- Metric-set Development
- TMF Development

Development Considerations

- Threat Modelling
- Metric-set Development
- TMF Development
- Operational Feasibility Analysis

Project Team

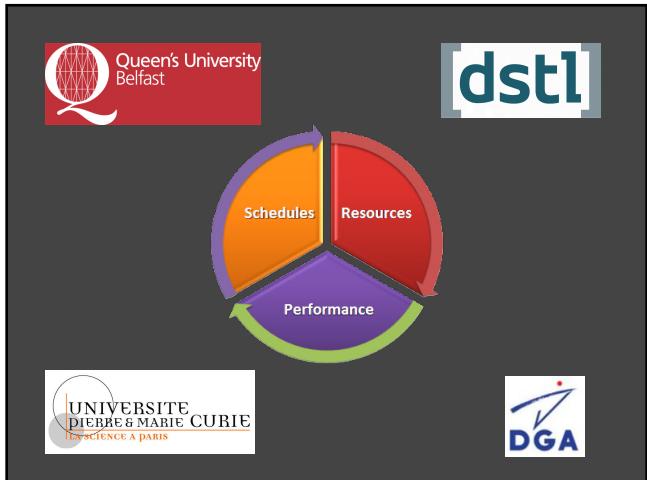
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Defence Context

- Certification of Autonomous Systems
- Security & Vulnerability
- Shallow Oceanic Zone & Coastal Environment
- Human Operator Control of UxVs

Added Value of Research

- Widened Scope of AUV Operations
- Increased AUV Operational Time & Distance
- Improved Fleet Reliability
- Enhanced Fleet Security

Thank you for your time