

MAS AIMSEC 22'WORKSHOP

ARTIFICIAL INTELLIGENCE AND SECURITY
FOR MARINE AUTONOMOUS SYSTEMS



UNIVERSITY OF
PLYMOUTH

The
Alan Turing
Institute

Welcome

The Team today

Mr Steve Rice

Dr Kimberly Tam

Rory Hopcraft

Avanthika Vineetha Harish

Juan Palbar Misas

Wesley Andrews

David Barrett



Objectives

1. Gain understanding of how the MAS technologies sector **perceive their cyber vulnerability/risk**.
2. Identify **priority risks** (perceived or true) within industry sectors or specific applications, to inform our future work/offer in cyber for MAS.
3. Gauge **the appetite from industry** to implement **IT/OT/human/policy** change, in order to gain competitive advantage and to be more secure
4. Draw in **more collaborators**, communicate concerns to wider audience, and **seek opportunities** (e.g. funding) to address identified concerns

Today's Agenda

10:30-11:00	Register – Tea & Coffee
11:00-11:30	Welcome
11:30-13:00	Sector Vision and Mission Exercise
13:00-14:15	Lunch/Tea & Coffee and tour of Cyber-SHIP Lab
14:15-15:15	Breakout Discussion
15:15-15:40	Takeaways
15:40-16:00	Thanks, next steps and final words

A few more things...

Acknowledgment

Many thanks to the Alan Turing Institute that funded this workshop through the [Turing Network Development Awards \(TNDA\)](#). And University of Plymouth/Cyber-SHIP for hosting.

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Anonymised discussion report

Please note that we will [anonymise and condense what is said and written down today](#).

This will be turned into a [White Paper](#) highlighting today's discussion, and shared with TNDA to demonstrate impact.

If you have concerns about this, please make contact at the end.

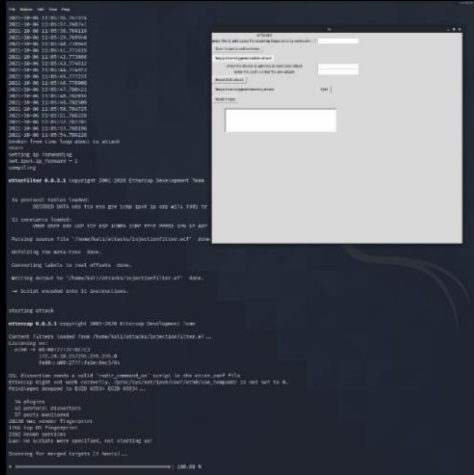
The Autonomy Side



The Security Side



The Console Room



Visualisation of data

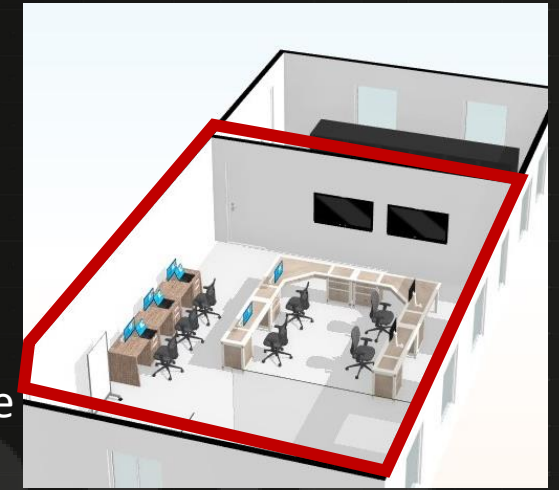
Physical hardware visualisation of attacks

Pen-testing

Research Project development

Development of custom electronics and software

Teaching/training



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The Vault



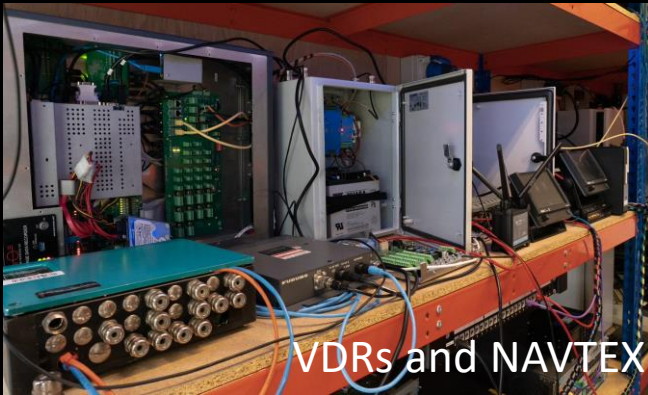
Drones and USVs



Radar equipment



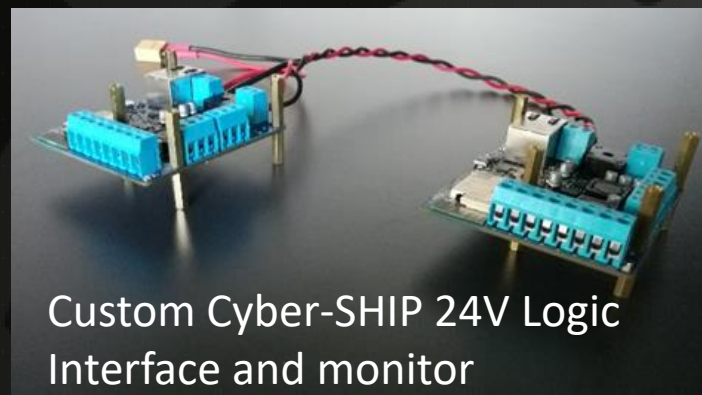
Custom Power Distribution



VDRs and NAVTEX



AIS receivers



Custom Cyber-SHIP 24V Logic Interface and monitor



MFDs



USV equipment





NMEA2000/0183
Devices



Serial-IP converters



Serial-IP converters



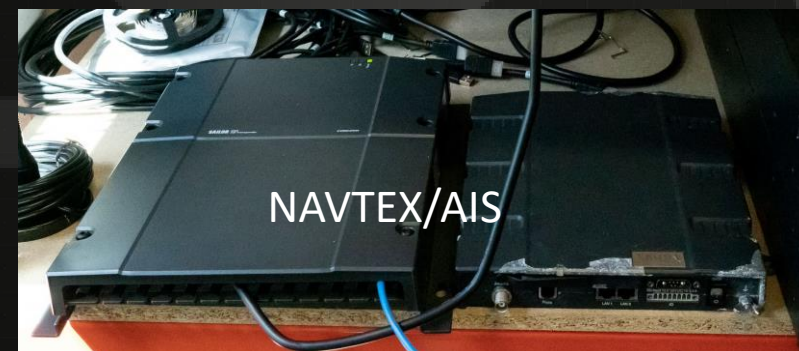
Data recovery from
ECDIS



AIS



Satcom



NAVTEX/AIS

Sector Vision and Mission Exercise

11:30-11:50

In groups, introduce yourself and discuss your topics of interest and cyber concerns

11:50-13:10

Rotate “half” of your group to the next table, introductions and discuss

Lunch and tour

13:10-13:50 LUNCH

13:50-14:15 Cyber-SHIP Lab Tour



Sector Vision and Mission Exercise

14:15-14:25

Brainstorm on paper what has been discussed

14:25-14:40

Prioritise perceived risks within industry from most to least critical



Sector Vision and Mission Sharing

14:40 – 13:00 Each group share 1-3 concerns with the room



Breakout Discussion

14:15-15:15

Around the room summary of concerns once more, will then divide groups for deep-dive discussion based on key topics brought up

15:15-15:40

Share thoughts, and discussions of key points that should be put in workshop paper. Discussions on next steps to develop bids, do more workshops, and what else would be useful.

Cyber-SHIP symposium

- Cyber-SHIP Lab Annual Symposium 26-27 October 2022, at the International Maritime Organization, London
- This is the second Cyber-SHIP Lab Annual Symposium following the project's commissioning at the beginning of 2021.
- Delegates: There is space for a maximum of 150 attendees, including speakers. Use this link to request a priority registration. Please include a brief biography or link to your online profile. Priority registrations are limited in number and at the discretion of the Organising Committee.
- cyber-ship-lab@plymouth.ac.uk

UK-RAS Pump Priming Call

Apply for up to £35K to fund cross-disciplinary activities

The EPSRC UK Robotics and Autonomous Systems network wishes to fund pump priming activities that aim to deliver impact in robotics and autonomous systems on one or more of the following:

- identifying research gaps and challenges;
- developing scoping projects to explore wider research collaboration;
- devising roadmaps or strategic solutions via: the production of white papers; organising robotics challenges, workshops, symposia and conferences;
- promoting academia-industry liaison;
- addressing barriers to robotics entrepreneurship in the UK;
- creating public engagement activities, such as: exhibitions; hackathons; festivals; conferences; demonstrations;

[Apply Now](#)

Alan Turing Institute Defence & Security programme

The Alan Turing Institute's Defence & Security programme would like to invite proposals for three different opportunities.

The submission deadline for each is **Friday 30 September 2022, 16:00**.

- Sensor Fusion Model - to develop a data fusion model for an Integrated Chemical Sensing concept based on the use of person-worn distributed sensor networks and arrays:
<https://www.turing.ac.uk/work-turing/call-proposals-sensor-fusion>
- Security for artificial intelligence - to improve our understanding of artificial intelligence (AI) security, particularly with a view to practical risks and implications: <https://www.turing.ac.uk/work-turing/call-proposals-security-artificial-intelligence>
- Narrative Detection Tracking - to investigate the application of AI techniques to suitable data sources to identify the emergence and track the spread of adversary narratives:
<https://www.turing.ac.uk/work-turing/call-proposals-narrative-detection-tracking>

Last few things

Thank you

Contact details:

Kimberly.tam@plymouth.ac.uk

stay in touch for funding opportunities, next events, and report

Next steps

We will write up today as a White paper. Let us know if you want to participate, or if you want a copy to send to others.

Ideas that can be fleshed out more into projects, lets keep in touch with those interested.



Cyber-MAR: A Real World Attack Scenario

Cyber-MAR project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 833389. Content reflects only the authors' view and European Commission is not responsible for any use that may be made of the information it contains.

