



RAi UK IA & IP Networking Event 12 March 2025 Royal Society, London



UK Research
and Innovation



AI Regulation Assurance in Safety-Critical Systems

*RAI UK International Partnership
United Kingdom, United States, Australia*

Dr. Jennifer Williams

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South England Engagement Director, UK National Edge AI Hub
Former Chair of ISCA Security and Privacy special interest group

A new story about AI regulation

- AI regulation and AI safety is beginning to “tire” globally, and lacks any fresh new insights, ideas, and perspectives
 - *Lots of analysis, criticism, and abstraction of the same old ideas*
- International conversations invigorate the discussion
 - *The three nations could not be more different, nor more similar*
- This project re-imagines AI regulation as a sociotechnical problem embedded in human rights
 - *Aligned to UK national priorities and principles from DSIT, and the “pro-innovation” approach*
 - *Honouring the national interests of all AUKUS nations*
 - *Protecting military advantage while being publicly forthright*

International Partnership

AI Regulation Assurance for Safety-Critical Systems



Principal
Jennifer Williams
United Kingdom



Co-Investigator
Zena Assaad
Australia



Co-Investigator
Peng Wei
USA

Aligned to AUKUS (Pillar 2)
Explore proxy problems
Model international engagement
Expose technical vulnerabilities

Aerospace

Maritime

Communications

- Develop a toolkit for regulators on emerging AI tech
- Deep dive into specific technologies in the three sectors
- Explore cross-regulation
- Identify technical and regulatory gaps

Case Study: AI Maritime Radio Watchkeeping

UK Maritime and Coast Guard Agency (MCA)

Listen, Understand, Respond

- Assurance for the correct frequencies
- Determine when frequencies need to change
- Language understanding and dialogue
- Detect distress calls
- Alert on deepfake and spoofing transmissions
- Re-broadcast when appropriate
- Respond appropriately to requests



Similar to *cognitive radio* with additional language response requirements, more diverse application environments, and the need for backwards compatibility



September 2024
George Wash Uni.
Washington, DC



March 2025
Australian Natl. Univ.
Canberra, Australia



June 2025
Australian Natl. Univ.
Canberra, Australia

Late 2025
Project end

March 2024
Team
Alignment
Priorities

Engage UK
regulator MCA,
discuss case
studies

Reformulate
workshop
design,
industry
interviews and
inputs

Industry
interviews and
inputs

Toolkit to
regulators,
academic
publications,
next steps

Summary of expected outputs

Academic analysis, including new emerging themes:

- anticipatory vs reactionary regulation
- social license and public discourse
- interplay between civilian vs military regulation
- cultural basis of AI safety
- baseline regulation (confidence, complementarity, continuity)
- innovation vs commercialisation
- regulatory lifecycles

Toolkit: advice to regulators for designing testbeds that establish AI baselines, advice for drawing cross-regulatory analogies, decision flow models for emerging AI technologies, culture-aware safety assessment guidelines, guidance on innovation vs commercialisation aspects



THANK YOU!

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