Challenges around Socio-technical AI Systems in Defence: A Practitioners Perspective

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ABSTRACT

AI has been described as a "*potentially transformative national security technology on a par with nuclear weapons, aircraft, computers, and biotech*" [1]. The UK Ministry of Defence (MOD) is taking a leading role in establishing international norms for responsible and ethical application of AI to Defence and Security challenges and developing techniques that counter mis-use of AI by unethical actors. This talk will share current MOD thinking on the threats and opportunities presented by AI, will provide a perspective on the key challenges of "operationalizing" AI within the Defence enterprise and will outline a framework called the "AI Building Blocks" used by Dstl to ensure AI systems are developed from a socio-technical perspective. These building blocks cover nine topics including "*platform*", the computational environment and architecture within which an AI system is realized; "*consent*", the compliance of the system with relevant legal, ethical and policy-based frameworks; and "*confidence*", the explainability and verifiability of an AI system as part of a trusted human machine team. Activities underway to address these "building blocks" will be illustrated using practical examples that address different aspects of the system. The talk will conclude by reflecting upon the critical importance of considering systems from a socio-technical perspective to ensure that AI is adopted in a responsible manner that reduces overall harm.

CCS CONCEPTS

•Computing methodologies~Artificial intelligence

KEYWORDS

Artificial Intelligence, machine learning, socio- technical systems, defence, systems engineering, trust, human-machine teaming.

Bio

Professor Meers is a Fellow at the Defence Science and Technology Laboratory (Dstl) specialising in the application of Artificial Intelligence and machine learning to Defence and Security challenges. He is the Head of Dstl's AI Lab and provides advice at the highest levels within the Ministry of Defence regarding the opportunities and threats presented by Artificial Intelligence and machine learning and how the UK can responsibly & safely adopt these technologies to strengthen Defence and Security. As well as his role with Dstl, he is a visiting Professor at the University of Southampton, working with the Centre for Machine Intelligence.

REFERENCES

[1] Greg Allen, Taniel Chan, 2017 Artificial Intelligence and National Security, Belfer Center for Science & International Affairs, https://www.belfercenter.org/sites/default/files/files/publication/AI%20NatSec%20-%20final.pdf