Technology Assessment for International Security

Science · Peace · Security '21

Aachen 8-10th September

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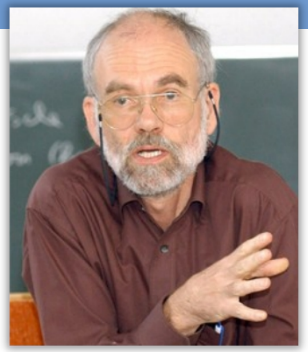
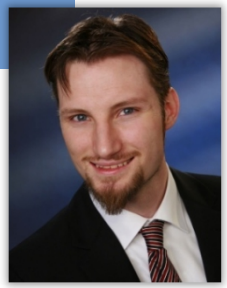
Thomas Reinhold
Arms control for AI - Why its urgent and why we will possibly still go wrong



Matthias Pilch, Jürgen Altmann, Dieter Suter
Small Armed Aircraft and Missiles - Dangers for International Security



Johannes Frieß, Bernd Giese
Gene Drive Modelling – Suitable for environmental risk assessment?

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ATHENE National Research Center for Applied Cybersecurity
CY-WARN Cyber Situational Awareness & Communication
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Arms control for AI -
Where we come from and where we're heading

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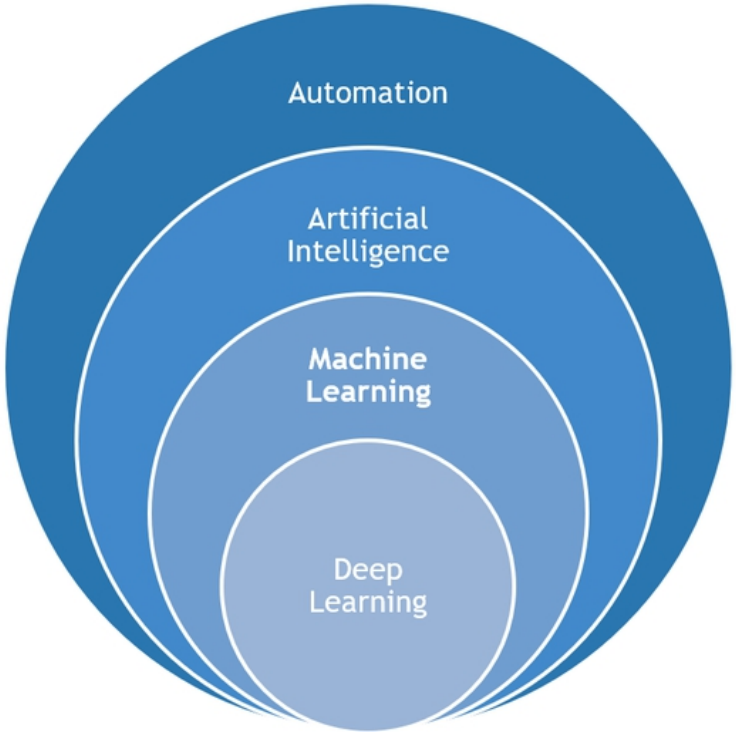
An very brief history of AI

- From automation to "intelligent" problem solving
- Rules-based vs. Learning
- Mimicking the mind

Military AI systems

- As part of autonomous verhicles
- Battlefield Management Systems
- Automated Cyber Defence
- Nuclear Command Automation and Monitoring
- Logistics, Recruiting Assessment, Management



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Arms control for AI - Problems and Chances

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Why Arms Control for AI is complicated

- All problems cyber (Virtualization, Seemless duplication, Non-physical form)
- AI's (esp. current trend of neuronal networks) are by design a black box
- Possible transparency measures (e.g. Explainable AI) technically possible but inherently a performance problem

Are we looking in the wrong direction?

- AI at its best for small scale, dedicated tasks (pattern recognition, information classification or limited autonomous path finding)
- Cheap of-the-shelf AI hardware available
- Regulation a "big digital brain" vs. AI-enabled small, widespread weapon systems

BUT: Arms control is possible (if we are ready to develop and deploy the tools)