

# Translating Technological Applications

PRESENTED BY AINIKKI RIIKONEN

Research Assistant, Technology and National Security Program

June 15, 2021

# I OVERVIEW

1

**What is AI?**

2

**AI Applications**

3

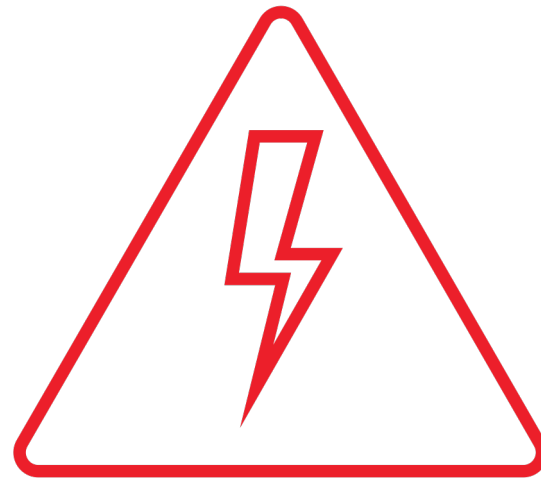
**AI Competition and Collaboration**

---

# What is AI?

MACHINE-LEARNING, GENERALLY

- Trains on data to determine rules
- Infers outputs based on rules

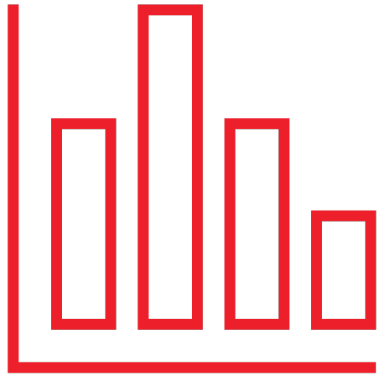


NARROW AI

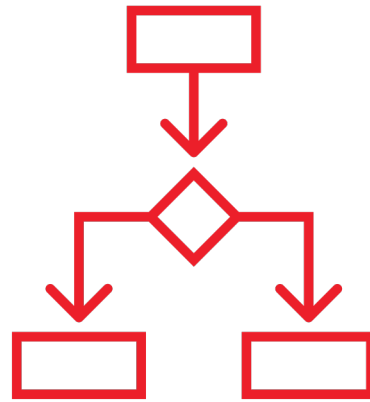


GENERAL USE,  
DUAL USE

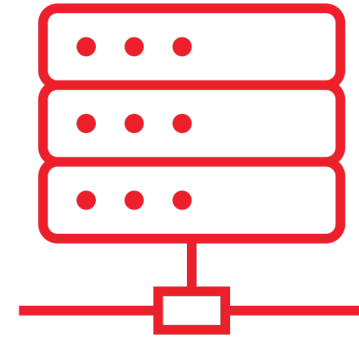
# AI Components



DATA



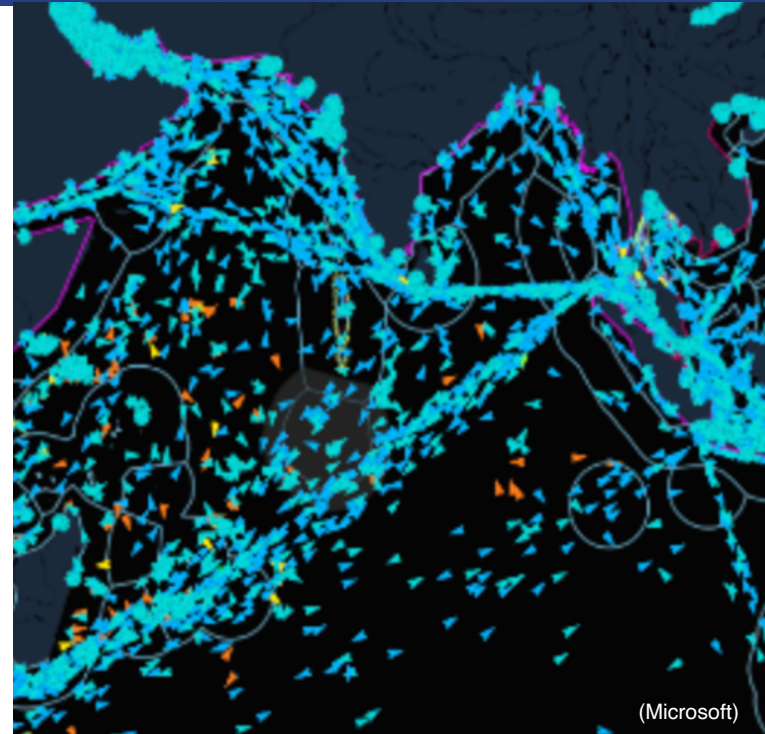
ALGORITHMS



HARDWARE

>>> PEOPLE AND PROCESSES <<<

# — AI Applications



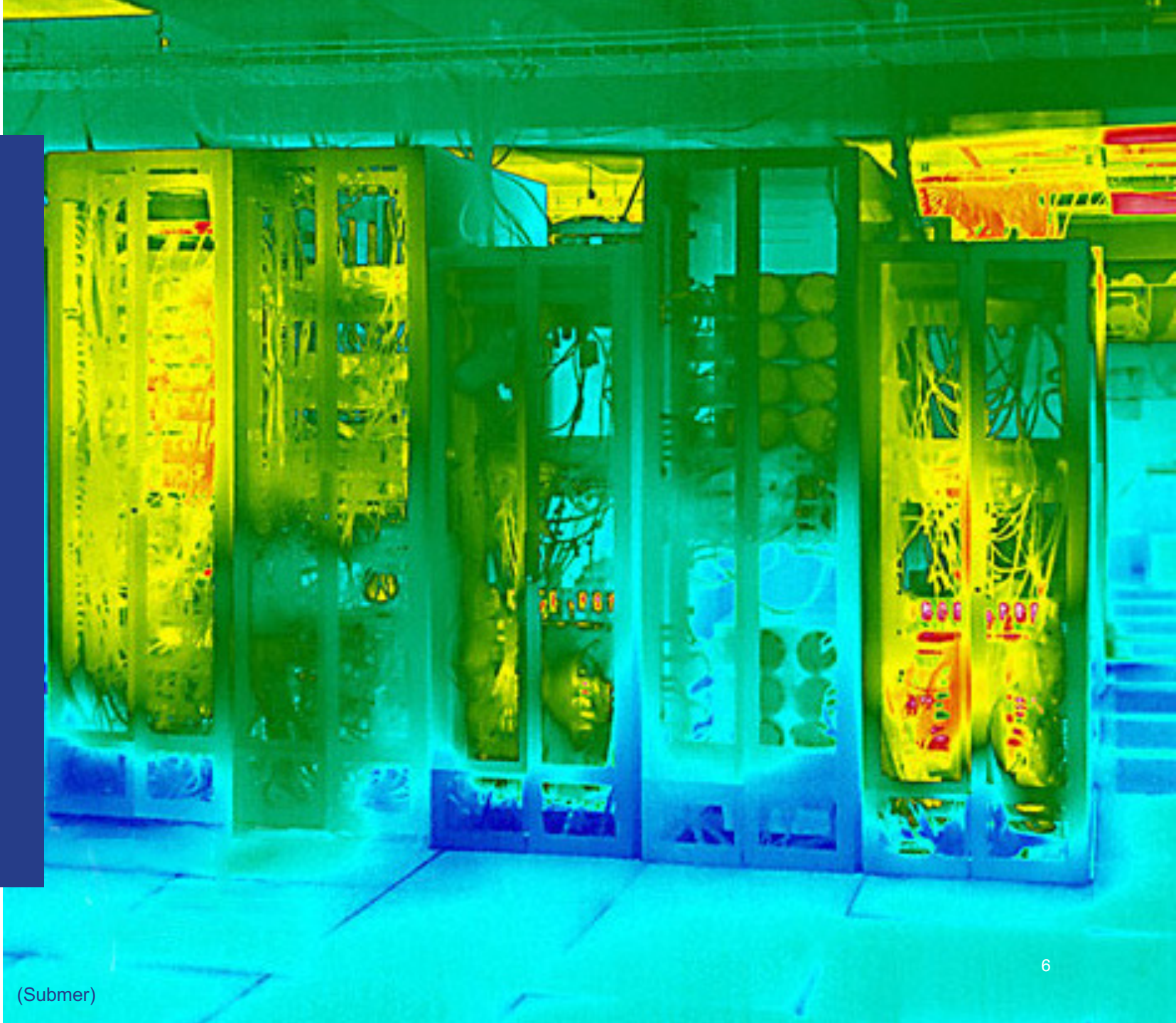
---

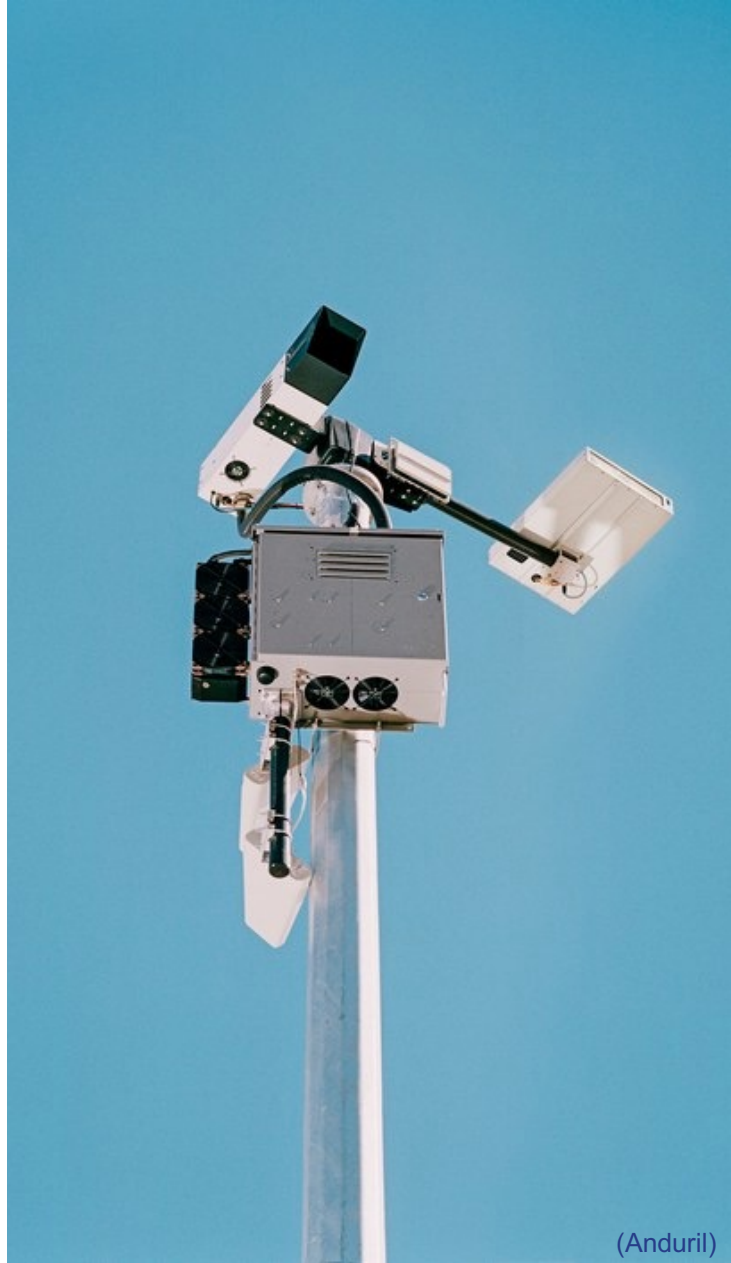
# Resource Optimization

**OBJECTIVE: REDUCE ENERGY CONSUMPTION**

Use sensor-collected data to optimize processes

- Temperature
- Power
- Pump speed





(Anduril)



---

# Situational Awareness

**OBJECTIVE: AUTOMATE IMAGE RECOGNITION**

- Train computer vision model on objects of interest
- Deploy sensors
- Reduce burden on analysts



# Predictive Analysis

**OBJECTIVE: IDENTIFY AND INTERDICT CRIMINAL BEHAVIOR**

- Aggregate data
- Analyze and predict behavior
- Insert human judgment for context

**DOWNSIDE: PRONE TO ABUSE (e.g., PRC)**



---

# Autonomous Functionalities

OBJECTIVE: NAVIGATE FROM LOCATION A TO LOCATION B

- Intake sensor data
- Process sensor data
- Apply decision-making
- Reduce manpower needs

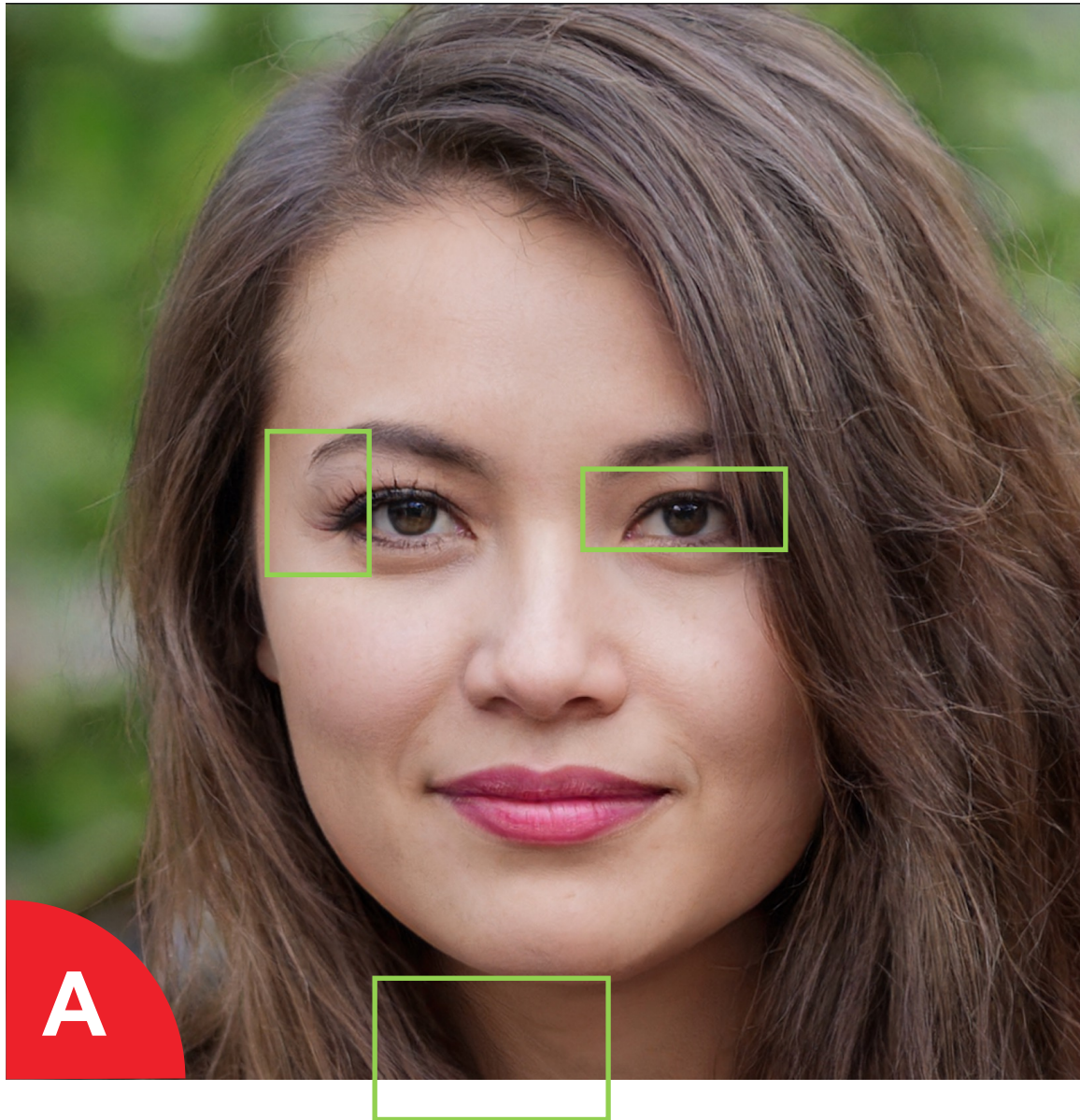


# Deepfakes & Disinformation



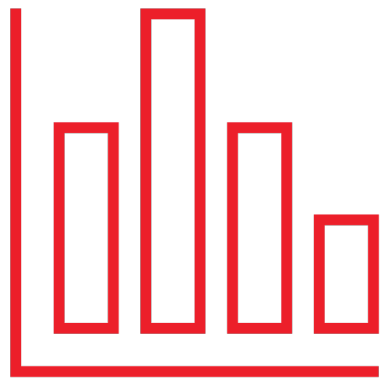
(This Person Does Not Exist/StyleGAN2)



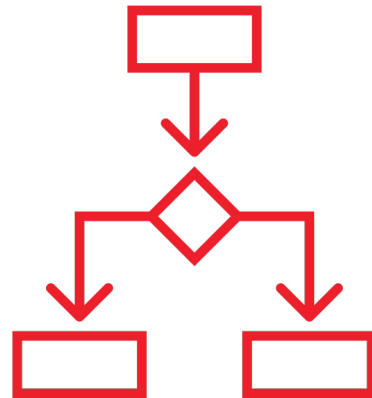


(This Person Does Not Exist/StyleGAN2)

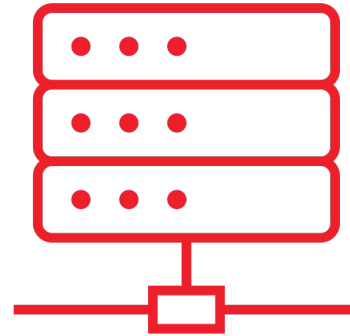
# AI Components + Ecosystems



DATA



ALGORITHMS



HARDWARE

- SENSORS (COLLECTION)
- NETWORKS (TRANSMISSION)
- DATABASES (AGGREGATION)
- AI (PROCESSING)
- INFORMATION POWER



>>> PEOPLE AND PROCESSES <<<

---

# AI Competition & Collaboration



# Competition & Collaboration

## (What is tech policy?)

- Human talent pipelines
  - E.g., immigration policy
- Data access, management, and interoperability
- Cybersecurity and supply chain risks
  - E.g., semiconductor availability; Digital Silk Road; Belt and Road Space Information Corridor
- Rules of the road; escalation off-ramps; proliferation of best practices
- R&D and technical solutions
  - E.g., explainability, deepfake detection, federated learning
- Digital governance models



**THANK  
YOU**



[ariikonen@cnas.org](mailto:ariikonen@cnas.org)



[@\\_ainikki](https://twitter.com/_ainikki)

