# **Detection Tools for Cognitive Warfare**

Leveraging the Cyber Domain

1 Detection Tools for Cognitive Warfare: Leveraging the Cyber Domain | PUBLIC RELEASABLE

# **Cognitive Warfare**

- "An unconventional form of warfare that uses cyber tools to alter enemy cognitive processes, exploit mental biases or reflexive thinking, and provoke thought distortions, influence decisionmaking and hinder actions, with negative effects, both at the individual and collective levels" (Claverie, Cluzel 2022)
- Jacques Ellul's Propaganda (1973) as inseparable part of technological society → a fitting parallel to Cognitive Warfare

- CW more dangerous with new knowledge and technologies



# **Cyberspace – Opportunity for CW Detection**

- Existing experience and tools
- Cyber warfare and CW often in concert
- Edge over adversaries by fast development based on repurposing of cyber monitoring tools, solutions and academic works

- Points for consideration:
  - Relatedness to Cognitive Warfare
  - Automatization potential

# Where to Look?

- Research / Academia
  - Innovative x Slow pace
- Open Market
  - Available x Inflexible + potential risk

#### Two primary axes for detection tools knowledge and tools:

- (1) Specificity
- (2) Availability



# **Ensemble Learning**

 Combining two or more machine learning algorithms to achieve better and more accurate results

– Primary learning methods:

- Bootstrap aggregation
- Stacking Generalization
- Boosting

- Possible combination with deep learning

– Can demand high resources

# **Deep Learning**

- Machine learning enables computers to learn without explicit programming.
- Large datasets needed for training
- Various learning methods: supervised, unsupervised, semi-supervised, reinforcement learning methods.
- Different datasets for training and testing

# Methods





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### **Methods**

- Decision Tree & Random Forest
- Generative Adversarial Networks
- Shades of Truth
- Social Network Analysis
- Multimodal Content



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# Tools





# Tools

 National Ecosystem for the Recognition and Analysis of the Information Effect Phenomena (NAAS)

llavní nabídka

Top Stories

- The Europe Media Monitor
- Commercially available tools:
  - Belief3

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- ThreatMetrix
- Cisco Secure Network Analytics

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**Current top 10 stories** Language: en Period: Oct 13, 2023, 10:10 PM - Oct 14, 2023, 10:10 AM

Tools

Další články



# Thank you!

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Claverie, Bernard, and François Du Cluzel. 2022. "Cognitive Warfare': The Advent of the Concept of Cognitics' in the Field of Warfare." NATO Collaboration Support Office. <u>https://hal.science/hal-03635889/document</u>.

FSS

Ellul, Jacques. 1973. Propaganda: The Formation of Men's Attitudes. Vintage.

### Images

Slide 12

- <u>https://commons.wikimedia.org/wiki/File:Decision\_Tree\_vs.\_Random\_Forest.png</u>
- <u>https://www.tensorflow.org/tutorials/generative/dcgan</u>

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<u>https://emm.newsbrief.eu/NewsBrief/clusteredition/cs/latest\_en.html</u>