Prediction and Anticipatory Thinking

Alyson Wilson, Ph.D.
Department of Statistics and Laboratory for Analytic Sciences
North Carolina State University

Adam Amos-Binks
Laboratory for Analytic Sciences
North Carolina State University

Laboratory for Analytic Sciences

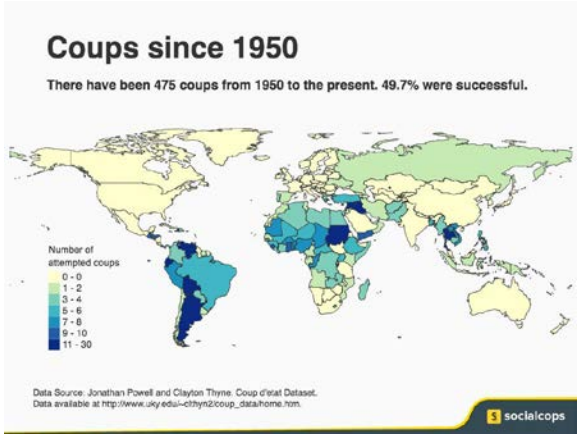
What is LAS?

LAS is an academic-industry-government partnership that works at the intersection of technology and tradecraft to enable analytic innovation for the intelligence community.

https://ncsu-las.org/

Current Examples

Failing State Index



News Media Reliability

Language Transliteration

Korean Name	IC Standard I	IC Standard II	ROKG	KBS
오 범숙	O Po’m-suk	O Pom-suk	O Beomsuk	Oh Burmsook

“Data Science”

- Starting to collaborate
- Statistics or social science in isolation is not the answer
- Gap between data and analysis
- Not strictly a question of scaling / “big data”

You just discovered a 4 GB hard drive. You have 15 minutes to tell me what’s on it.

Looking Forward

- Prediction and Anticipatory Thinking
- Open Source Analytics
- Collaborative Computing

IC Motivation

2 Anticipatory Intelligence: Sense, anticipate, and warn of emerging conditions, trends, threats, and opportunities that may require a rapid shift in national security posture, priorities, or emphasis.

Anticipatory intelligence is the product of intelligence collection and analysis focused on trends, events, and changing conditions to identify and characterize potential or imminent discontinuities, significant events, substantial opportunities, or threats to U.S. national interests.

AT underpins anticipatory intelligence, which is a one of the priority mission objectives from the 2014 U.S. National Intelligence Strategy.

J. Clapper (2014). The US National Intelligence Strategy.

Anticipatory Thinking

"This ***event*** will occur by this date with probability X"

Anticipatory Thinking generates the ***events***

What would Anticipatory Cyber Intelligence look like?

Where could we be in 10 years?

- Can AT be developed/understood so that it can be used in producing intelligence?

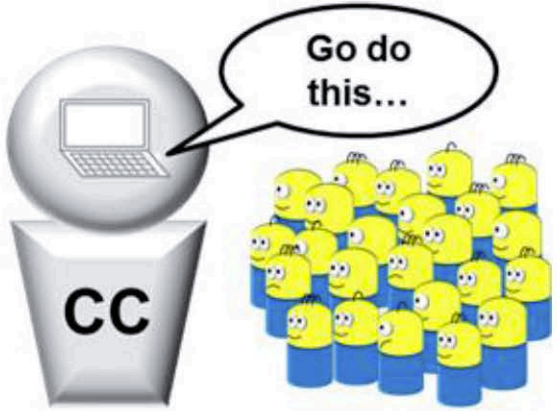
- Can AT be developed/understood so that we can apply it to understanding our adversaries?

Collaborative Computing

Instrumentation and Observation

How does the system capture and represent what the analyst is doing?

Tasking and Execution



How do we map those observations to the analytic tasks that the system should perform?

User Experience

How do we bring results that, *by definition*, have not been asked for back into the analysts' workflow in a helpful manner?