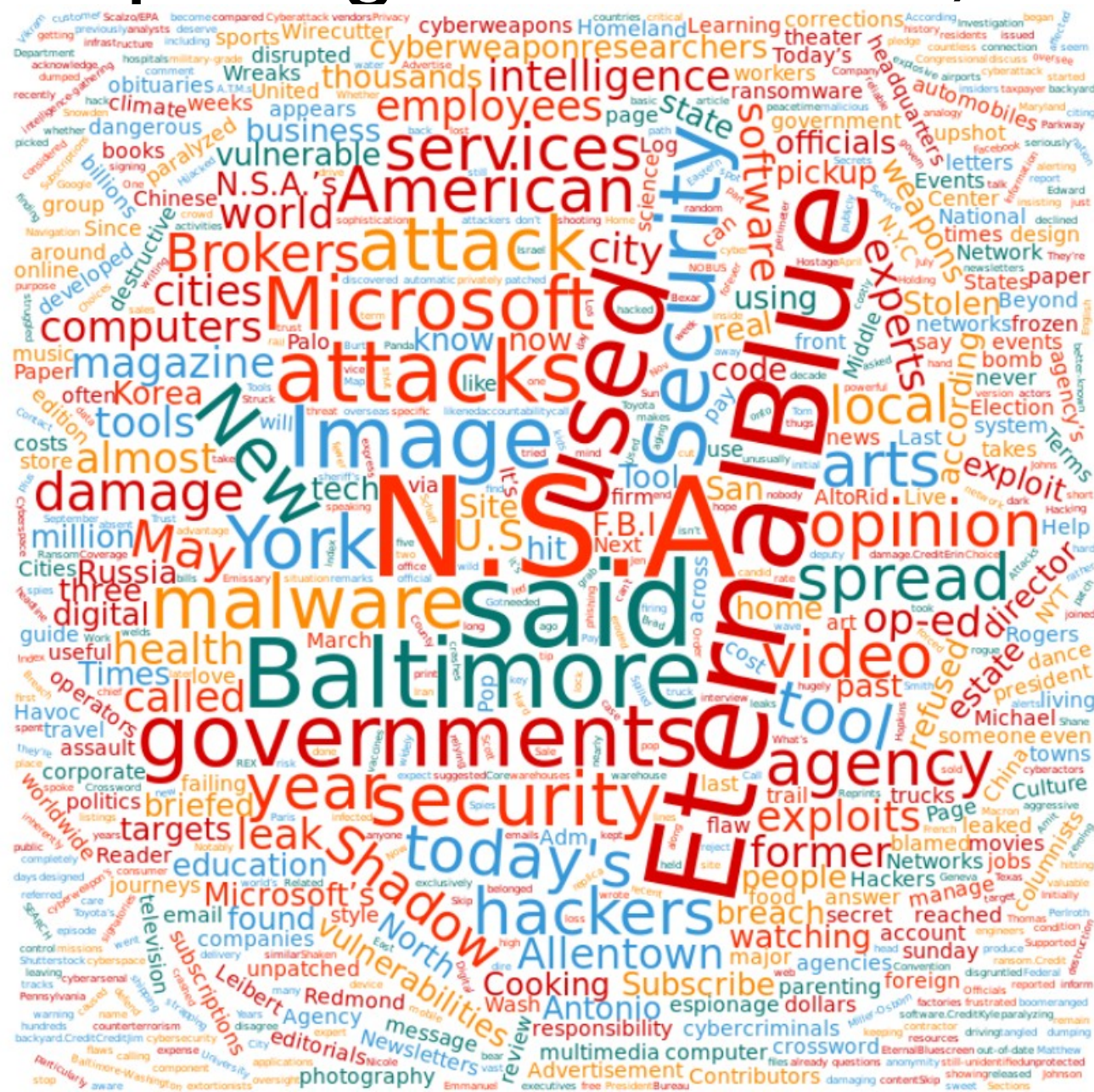# Computing in the News, 2019

Artificial Intelligence ("AI")

Goals of AI research: understanding/replicating

- reasoning,

- knowledge representation,

- planning and learning,

- natural language processing,

- perception and

- the ability to move and manipulate objects

    https://en.wikipedia.org/wiki/Artificial_intelligence

Knowledge Representation

Can we represent information about the world in a form that a computer can utilize to solve complex tasks?

Examples: diagnosing a medical condition; having a dialog in a natural language.

Findings from psychology about how humans solve problems and represent knowledge are used to design formalisms for building complex systems.

Findings from logic are used automate various kinds of reasoning, such as the application of rules or the relations of sets and subsets.

Machine Learning

Can we program a computer with algorithms and statistical models such that it can perform a specific task without explicit instructions?

Examples: identify spam email, detect bank fraud, recommend movies to viewers

Machine learning algorithms build mathematical models based on sample data, "learning" to make predictions or decisions without being explicitly programmed for the task.

See also: data mining, computer vision, computational statistics

https://en.wikipedia.org/wiki/Machine_learning

"AI"

https://www.nytimes.com/2019/05/20/health/cancer-artificial-intelligence-ct-scans.html

The New York Times

A.I. Took a Test to Detect Lung Cancer. It Got an A.

Artificial intelligence may help doctors make more accurate readings of CT scans used to screen for lung cancer.

"AI"

Many other applications include:

- Attribution of artworks
- Identification of brain tumors
- Identification of patterns in music

Surveillance

https://www.theguardian.com/technology/2019/may/31/facial-recognition-school-new-york-privacy-fears

Facial recognition

New York school district's facial recognition system sparks privacy fears

Plan for cameras to track students in Lockport's schools called 'unprecedented invasion of privacy' and 'colossal waste of money'

Tracking Phones, Google Is a Dragnet for the Police

The tech giant records people's locations worldwide. Now, investigators are using it to find suspects and witnesses near crimes, running the risk of snaring the innocent.

By JENNIFER VALENTINO-DeVRIES   APRIL 13, 2019

Cyber-espionage

https://www.zdnet.com/article/tajmahal-cyber-espionage-campaign-uses-previously-unseen-malicious-tools/

https://www.nytimes.com/2019/05/25/us/nsa-hacking-tool-baltimore.html

TajMahal cyber-espionage campaign uses previously unseen malicious tools

Technically sophisticated and rare, this malware steals data and uses new techniques including stealing documents sent to print, stealing files burned to a CD and much more - and it isn't linked to any known threat actor.

By Danny Palmer | April 10, 2019 -- 07:51 GM

The New York Times

In Baltimore and Beyond, a Stolen N.S.A. Tool Wreaks Havoc

Government Surveillance

https://www.nytimes.com/2019/04/14/technology/china-surveillance-artificial-intelligence-racial-profiling.html

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Cybersecurity

Report Shows Sophistication of China Mass Surveillance

By Blake Schmidt
May 1, 2019, 5:01 PM EDT
Corrected June 6, 2019, 12:05 AM EDT

≡   The New York Times

One Month, 500,000 Face Scans: How China Is Using A.I. to Profile a Minority

In a major ethical leap for the tech world, Chinese start-ups have built algorithms that the government uses to track members of a largely Muslim minority group.

Supercomputing

https://www.cnet.com/news/worlds-fastest-supercomputer-coming-to-usa-frontier-built-by-cray-and-amd/

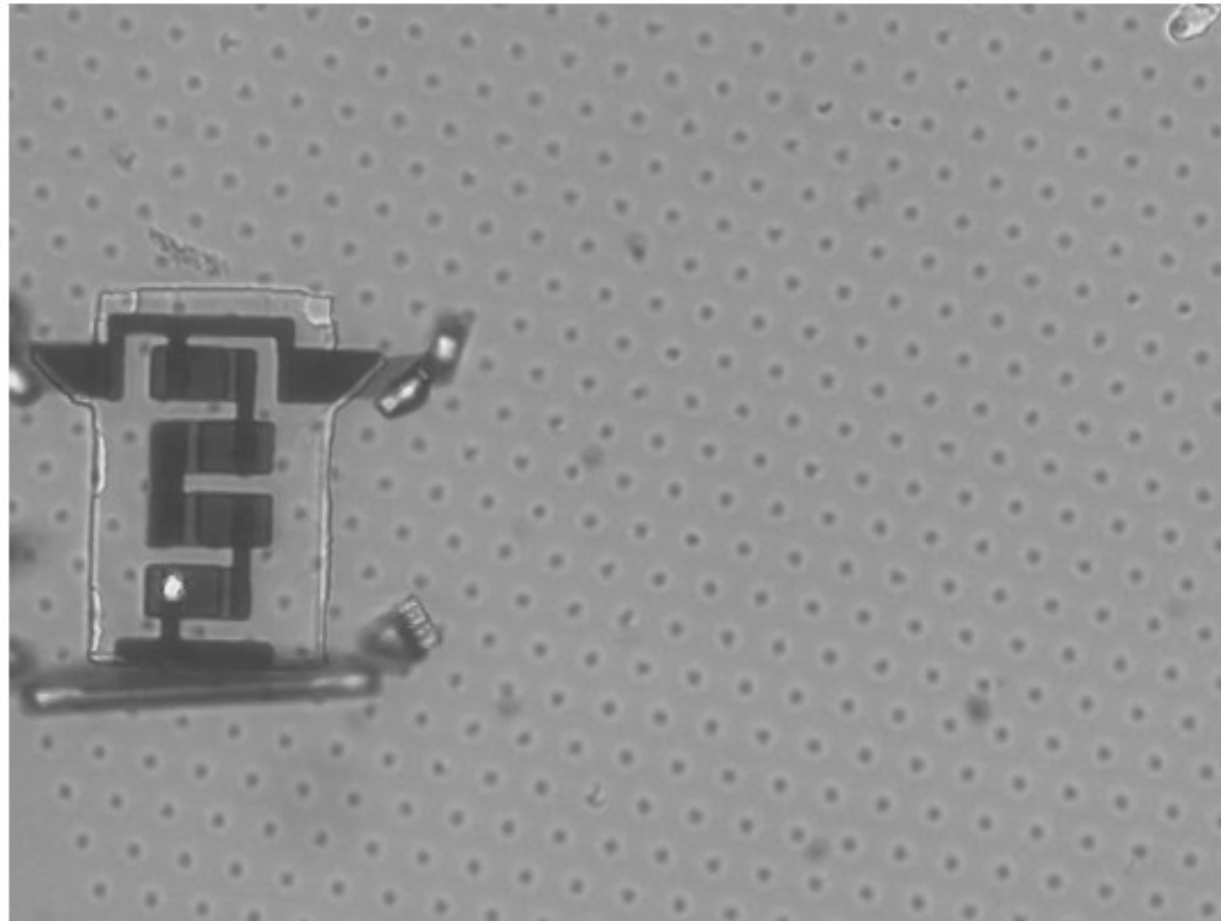## World's fastest supercomputer coming to US in 2021 from Cray, AMD

The Energy Department awards a $600 million contract to build Frontier, while China and other countries are buying more supercomputers.

BY STEPHEN SHANKLAND | MAY 7, 2019 8:19 AM PDT

The Microbots Are on Their Way

Tiny sensors with tinier legs, stamped out of silicon wafers, could one day soon help fix your cellphone battery or study your brain.

Video by Marc Miskin, University of Pennsylvania and Cornell University

Science & Environment

UK drones map Chernobyl's 'Red Forest'

By Jonathan Amos
BBC Science Correspondent

Boston Dynamics prepares to launch its first commercial robot: Spot

Spot the robot will go on sale later this year

By James Vincent | Jun 5, 2019, 12:34pm EDT

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