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CS349

SURVEILLANCE AND WHISTLE BLOWING

HISTORY OF SURVEILLANCE

- ▶ “Enlightened rulers and good generals who are able to obtain intelligent agents as spies are certain for great achievements.” – Sun Tzu
- ▶ Spies and intelligence networks have historically been used across a multitude of civilizations
- ▶ Ciphers and codes common for transmitting sensitive information
 - ▶ Caesar cipher named after Julius Caesar, who used it in his correspondence
- ▶ In such networks agents would:
 - ▶ Target and monitor the activities of individuals
 - ▶ Plant information/engage in activities to gather information

CIPHER BUREAU: ORIGINS OF US MODERN INTELLIGENCE

- ▶ Cipher Bureau of Military Intelligence created during WWI and headed by Herbert Yardley
 - ▶ Used to break German codes during the war
 - ▶ Aided diplomatic negotiations with Japan in 1922
 - ▶ Used Western Union and other telegraph companies to gain information entering and leaving the country
- ▶ Secretary of State closed the agency in 1929
- ▶ In 1931 Yardley published activities of Cipher Bureau for US citizens and the world to see

OTHER AGENCIES FOLLOW...

- ▶ In 1930, US Army formed Signal Intelligence Service (SIS) for code-breaking outside of State Department
 - ▶ Focused on monitoring the Japanese Empire
 - ▶ Cracked Japan's Purple cipher and JN-25 code (used during Midway)
- ▶ President Truman reorganized SIS into the National Security Agency (NSA) in 1952

NSA'S COLD WAR ACTIVITIES

- ▶ Monitored correspondence of US citizens under program called Project SHAMROCK
- ▶ Monitored communications of civil rights leaders and opponents to Vietnam War under Project MINARET
- ▶ A 1967 program used to monitor suspected terrorists and drug traffickers expanded by later presidents to monitor political dissidents
- ▶ In 1978 Church Committee hearings led to Foreign Intelligence Surveillance Act (FISA) to set guidelines for what the NSA could collect and prevent warrantless surveillance
- ▶ NSA shrank in size after end of Cold War

SURVEILLANCE IN THE TURN OF THE CENTURY

- ▶ FBI launched Carnivore, a customized packet sniffer, to monitor Internet traffic and use
- ▶ After 9/11, NSA launched data mining program to look through electronic data
 - ▶ Under President George W Bush, NSA also authorized to monitor phone calls and e-mails of US citizens without a warrant
 - ▶ Warrantless wiretap program ended in 2007 due to public pressure and questionable legality
- ▶ FISA Amendments Act of 2008 allows government agencies to monitor electronic communications of foreigners abroad
 - ▶ President Obama extends Act by five years in 2012
 - ▶ Reauthorized again for six years in 2018
- ▶ In 2013, NSA contractor, Edward Snowden, revealed PRISM program, allowing officials to collect material including search history, e-mail content, file transfers and live chats
 - ▶ Done in collaboration with major corporations including Microsoft, Yahoo, Google, Facebook, YouTube, Skype, AOL, and Apple

INSTAPOLL: WHY IS THIS SORT OF SURVEILLANCE DIFFERENT?

- ▶ Why might modern surveillance be different than earlier forms of surveillance?

INFORMATION IN THE INFORMATION AGE

- ▶ Understanding of information, and the transmission of information, rapidly developed in the 20th Century
- ▶ Amount of information in the world also exploded
 - ▶ But not necessarily any good way to process so much data

 **65 billion**
Location-tagged payments made in the U.S. annually

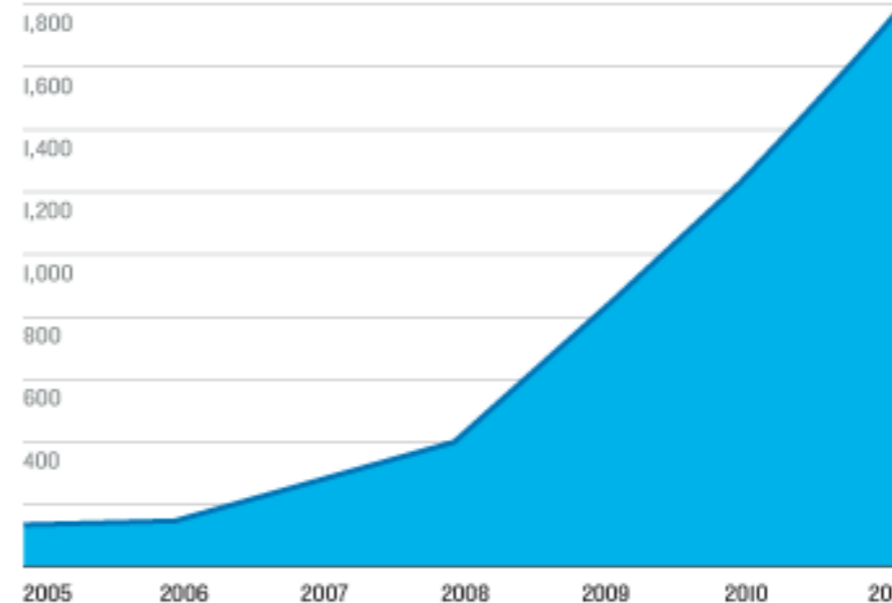
154 billion

E-mails sent per day

 **87%**
U.S. adults whose location is known via their mobile phone

Digital Information Created Each Year, Globally

2,000 BILLION GIGABYTES



2,000%

Expected increase in global data by 2020

111 Megabytes

Video and photos stored by Facebook, per user

75%

Percentage of all digital data created by consumers

Sources: IDC, Radicati Group, Facebook, TR research, Pew Internet

DEEP LEARNING

- ▶ In 2012, deep learning added more layers to the traditional convolutional neural network approach for classifying information
 - ▶ Extremely good results with enough data
- ▶ Result is rapid improvements in the areas of machine learning, natural language processing, computer vision, and pretty much anything that requires pattern recognition

DEEP LEARNING IN SURVEILLANCE

- ▶ Facial recognition
- ▶ Behavioral recognition
- ▶ Object identification
- ▶ Large data sets that can be processed without human assistance...



WHAT DOES THIS MEAN?

- ▶ What does this mean for you as a computer scientist?
- ▶ What does this mean for societies worldwide?
- ▶ What does this mean laws, enforcement, and future systems of government?

HONG KONG PROTESTS

- ▶ Facial recognition is key for both sides
 - ▶ Police want information on protesters and access to protesters' phones
 - ▶ Protesters doxx police officer information including home address, friends, and family
- ▶ Possibly first “real world” application of disrupting machine learning techniques via masks, face paint, etc

OTHER EXAMPLES?

SIDE NOTE: GUN TRACING

WHISTLEBLOWING

- ▶ Whistleblowing is when someone in a company reports immoral or illegal activities to an outside organization
 - ▶ Publicizes company's actions to general public
 - ▶ Allows for government fines or prosecution if laws or regulations are being violated
 - ▶ Whistleblowers protected from company retaliation by federal and often state laws

WHAT ABOUT WHISTLEBLOWING AGAINST THE GOVERNMENT?

- ▶ Whistleblower Protection Act (WPA) states that the government cannot take “adverse personnel actions” against employees who engaged in “protected disclosures to specified persons”
 - ▶ Personnel actions includes firing, demoting, and cutting pay but offers no protection against criminal prosecution
 - ▶ Specified persons means, in the case of classified information, only includes certain officials
- ▶ Does not apply to anyone in a confidential, policy-determining role, or apply to anyone in the FBI, CIA, or NSA
- ▶ The Intelligence Community Whistleblower Protection Act (ICWPA) permits disclosure of certain information to agency’s Inspector General (IG) but does not protect against retaliation

WHISTLEBLOWING AGAINST THE MILITARY?

- ▶ Military Whistleblower Protection Act (MWPA) provides similar protections as the IWPA but for military personnel
 - ▶ Disclosures should go through Inspectors General in the Department of Defense
 - ▶ Nominally provides protections against retaliation and reprisals
- ▶ IGs often do not acknowledge connection between previous whistleblowing and reprisal
- ▶ Incidentally the Nuremberg Principles do not allow for the “superior orders” defense in crimes under international law

CHELSEA MANNING

- ▶ In 2010, Pfc. Manning, currently deployed in Iraq, released classified and sensitive documents relating to the conduct of US soldiers in Iraq and Afghanistan to international watchdog organization, WikiLeaks
 - ▶ Revealed larger number of civilian casualties than US had reported
 - ▶ Included footage of the 2007 Baghdad airstrikes that killed two Iraqi war correspondents working for Reuters
- ▶ In May 2011, Manning charged by US Army with 22 counts of unauthorized possession and distribution of secret diplomatic and military documents
 - ▶ Received a 35-year sentence
- ▶ In 2017, President Obama pardoned her three days before leaving office

EDWARD SNOWDEN

- ▶ In March 2013, Snowden, a contracted NSA analyst, fled the US to Hong Kong
- ▶ Leaked information to the press on NSA's Prism program as well as British agency, GCHQ, which was tapping fiber-optic cables under the codename Tempora
- ▶ Revealed spying not just against US and UK citizens but other international states, including China, Germany, Brazil, and Mexico
- ▶ Snowden currently in exile in Russia

PATRIOTS OR TRAITORS?

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