NEBRASKA DEPARTMENT OF INSURANCE

Big Data and Insurance: A New Frontier

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- Megan VanAusdall serves as a staff attorney with the Nebraska Department of Insurance and has been with the Department since January.

- Previously, Megan served as Legal Counsel with the Missouri Department of Insurance, and as an Assistant Public Defender in Dunklin County, Missouri.

- Megan graduated from Southern Illinois University School of Law in 2016 and Bradley University in 2013.

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Housekeeping

- AJ, our Public Information Officer, will be monitoring the chat for questions
- If you are calling in to this presentation, please provide A.J. your email address through the chat, so she can send you the certificate of completion and other materials
- Certificates of completion will be emailed to all participants
- Please stick around after the Q&A for a brief satisfaction survey
- Disclaimer: I am a lawyer, not an I.T. professional, so do not rely on this presentation for any tech advice/knowledge .
  - Do your own research – it's fun!

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The Great Eye Is Ever Watchful: Data Collection in the Modern World

Before we dive into some of the laws and regulatory actions in response to Big Data, let's get some background:

Why "Big" Data?

- "Data" refers to personal information about individuals, usually gathered without explicit consent through using an app or website
- It's called "big" data because of the huge volume of information gathered – too much to process without some technological tool
- The International Data Corporation reported the value of the data collection market in 2018 was $122 billion, and it's a growing market

How is Data Collected?

Short answer: apps and websites collect “cookies”

From their users

- “**Cookies**” are a small packet of information that a website (or app), sends to your computer, enabling the website or app to track the user’s visits to the site as well as their activity on it
  - **Fun Fact**: their full name is “magic cookies,” and their inventor chose the name because, like fortune cookies, internet “cookies” contain an embedded message
- There are two categories of cookies: first-party and third party
- Normally, cookies do not transfer computer viruses/malware, because the data in them doesn’t change as they are transferred

“Flavors” of Internet Cookies

- First-Party (Common Elements):
  - Generated by hosting website/app
  - Intended to serve the user of website/app [e.g., they can remember usernames/passwords and keep track of items placed in a digital cart]
  - Subtypes: session cookies, tracking cookies, authentication cookies

- Third-Party (Common Elements):
  - Generated by internet service providers (ISPs) and private companies
  - Intended to gather information about the users of a website or app (usually to sell the data to another third party)
  - Subtypes: third-party tracking cookies

“Cross-Site Tracking Cookies”: aka Fleas of the Internet

- Cross-site tracking cookies are usually created and used by data collection firms, advertising networks and analytics companies
  - Act like fleas - ‘latch onto’ internet users who may, among other activities, click on an ad, or ‘like’ a social media post, which alerts the tracking cookie to lock on
  - May also be introduced as tracking pixels (tiny images embedded in the website’s code, or as a script running unnoticed in the background of a website)
  - In whatever form, **cross-site tracking cookies** are designed to follow a user from website to website, gathering information and creating a profile on them
- BUT! The rise of internet literacy has threatened their effectiveness, since more consumers are learning to either block cookies or delete any stored or cached cookies
- In response, these companies developed a new technology…

It’s a Bird! It’s a Plane! It’s - “Supercookies”?

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What ARE “Supercookies”?

- More accurate name (supercookies are not “cookies,” per se [b/c actual cookies don’t alter data]) is “Unique Identifier Headers” or UIDH’s, also called “**tracking headers**”

- **Tracking headers** work by inserting a unique value into an HTTP request, then building a record/profile of sites visited
  - EXAMPLE: Martin types in “http://facebook.com,” on his phone, then hits ‘enter’ → browser requests to connect to the internet → Martin’s carrier embeds a tracking header as a custom header (the HTTP part of the web address), then sends the request on → now, the tracking header can record and track any unencrypted site (i.e., any site using “http” in its address) he goes to after that
- Since sites can easily detect if a **tracking header** is being used, they can also pull info on past sites visited, which leads to…

Tracking Headers - Why Do They Matter?

Let's clear something up first:

Even if a website doesn't directly collect and sell user information from tracking headers, **supercookies** on the website can be retrieved and used by third-party companies to identify sites users have requested. These third-party companies then use it for targeted advertising, or sell it on to others (data brokers).

- Access Now, an organization advocating for digital rights, reports tracking headers are most prevalent in the U.S., followed by Spain and the Netherlands. Of 180,000 tests done by Access Now, 15% contained tracking headers

- Verizon and AT&T have used tracking headers (but – as of 2014, AT&T claims they were "phased off our network"

- Tracking headers raise privacy concerns because 1) they're transferred by the ISP and 2) some contain info such as phone numbers

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Internet Security: Do YOU Know Where Your Personal Data is Right Now?

The point is a lot of personal information, including health information, can be ‘scraped’ off the web by these cookies and programs, leaving consumers vulnerable to more than targeted ads.

What is the solution?

There are several ways to protect yourself on the internet (though this list is not exhaustive):

- 1) Set up your browser to block third-party cookies (remember, not all cookies are bad! 1st party cookies come from the website)
- 2) Clear out ‘cached’ data regularly (Warning: will not find **supercookies** - remember: they are not “cookies”)
- 3) Use a Virtual Private Network (VPN)

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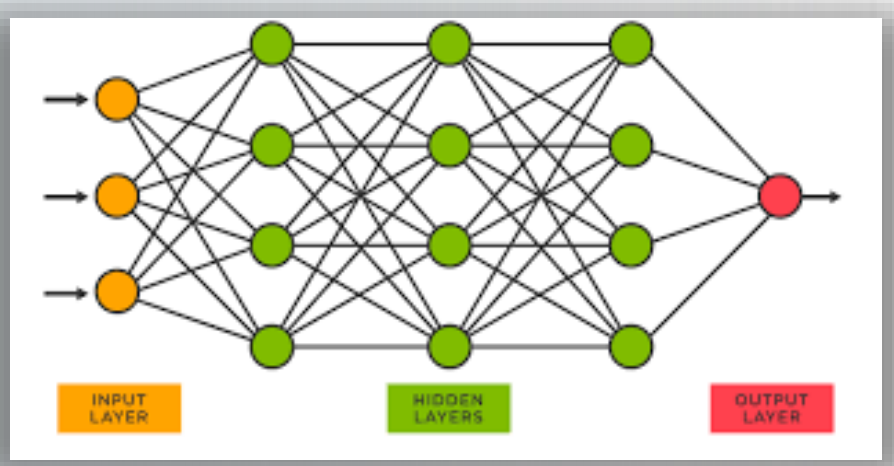
The Rise of Artificial Intelligence

- What *is* Artificial Intelligence?
  - "machines that respond to stimulation consistent with traditional responses from humans, given the human capacity for contemplation, judgment, and intention."
- Emphasis is on: solving problems, making decisions, and dealing with issues as they emerge
- Types of Common AI:
  - Machine Learning (algorithms)
  - Neural Networks
  - Deep Learning
  - Natural Language Systems



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A.I. and Big Data: A Match Made in The Cloud

- In Germany, Merantix, a tech company, has developed AI that applies **deep learning to medical issues**
  - Their AI can detect lymph nodes in the body using “computer tomography” images
  - Once images are gathered, AI program scans through thousands to find small lesions or growths as “training.” Then, can use this learning to sift through real-time images and flag problematic ones for biopsy
  - Radiologists also do this, but for ~ $100/hour
- Big data involves huge amounts of information: both structured and unstructured
  - Structured data: organized in some way, ‘formatted’
  - Unstructured data: random pieces of info (like: social media posts, info picked up from internet cookies)
- AI can sift through and learn from all this data, especially since cloud storage of data has become increasingly popular

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Cloud Data Storage

- "Cloud Storage": the practice of companies storing large amounts of data by sending it off to third-party digital storage space ("data lake," "data warehouse")
  - Alternative: on-site data storage - $$$
  - Some data in the cloud is publicly-accessible, depending on who sent it there and any agreements in place when it was sent

- Companies, including insurers, have used this new, easily-accessible data to innovate in various ways, but especially:

- **Predictive Analytics**, aka "Telling the Future," uses:
  - Data mining
  - Statistical modeling
  - Machine learning
  - "narrow" Artificial Intelligence

Liability Report: How the Insurance Industry Uses Big Data

(1) More Accurate Underwriting
- Telemetrics

(2) Quicker Resolution for Customer Issues

(3) Tailored Marketing

(4) Streamline App Process by Pre-Filling App Docs

(5) Apply Machine Learning Algorithms to Outcomes

(6) Better Fraud Detection
-text analytics programs can find red flags in adjusters' reports

(7) Improve Solvency
-through more accurate identification of risk

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Gattaca 2.0: Concerns About Use of Big Data in the Insurance Industry

- The downside of Big Data – it's (mostly) gathered without the consumer's knowledge or consent, raising ethical concerns
- More importantly: health information, such as diagnoses of serious diseases, can be lifted from the data using these methods

- Algorithmic Bias
  - Algorithms designed to identify patterns in data
  - BUT: some patterns ARISE from human bias
  - Then, the algorithm blindly "mirrors" this bias – perpetuating it
  - Can lead to Unfair Discrimination and Unfair Treatment

- Example of Algorithmic Bias Effect:
  - The Problems with Facial Recognition: i.e., "How is Face Recognition Surveillance Technology Racist?"

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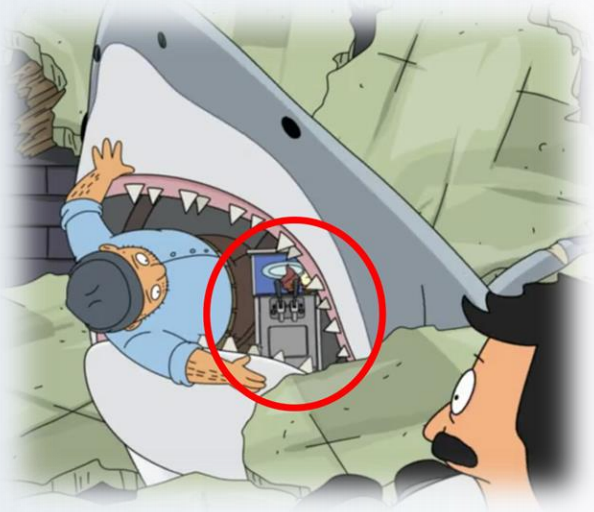
All About Algorithms: Ways to Cut Bias Out

- Essential Problem of Algorithms – they can't identify **spurious correlations**

- Spurious Correlations are when two factors appear causally related to each other [i.e., looks like one factor **causes** the other] but in fact, there is no relation
  - Famous example: shark attacks and ice cream sales both go up at the beach in summertime



- How to Reduce Algorithmic Bias?
  - Human intervention – have a person look over results to identify bias
  - quality data = quality input = quality output

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Consumer Privacy vs. Profit; or "Capitalism Promises to Regulate Itself"

- Private Sector Response to Consumer Privacy Protection Concerns
  - Mozilla (like the Firefox browser) ran a data privacy study on 32 mental health apps, aimed at how easily user data could be obtained by third parties
  - 26 out of the 32 apps had "lax safeguards," despite dealing with sensitive, highly private information [again, no protection under HIPPA]
- Not the first time – Equifax data leak (2017), Target data leak (2013 – $18.5 million settlement)
- Center for Democracy and Technology (CDT) and eHealth Initiative (eHI) want to create guidelines for health-care entities to self-regulate in order to protect patient privacy. It would be administered by Better Business Burea's National Programs, a non-profit
- FTC has ability to step in if a business violates their privacy policies – but no control over non-profits
- Critics also say: companies will not regulate themselves

Keep Your Hands Off My Data: The Federal Response to Big Data

"**American Data Privacy and Protection Act,**" H.R. 8152, was introduced to the Senate on June 21, 2022

Broad Strokes:

- Bi-partisan bill, introduced by the House Energy and Commerce Committee
  - Would apply to most entities, including non-profits and utility companies and telecommunications companies
    - Large data holders (meet certain thresholds) or service providers (use data on behalf of other covered entities) would face different or additional requirement
- Would apply to data/information that "identifies or is linked or reasonably linkable" to an individual
- Consumers would have the right to access, correct, and delete their data
  - Covered entities would be required to obtain **express, affirmative consent** from the consumer before using "sensitive, covered data" [defined]
  - Required: consumers can object before their data is sold/ given to a 3rd party

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American Data Privacy and Protection Act (ADPPA): The Details

- **Duty of Loyalty**: requirements to abide by 1) data minimization principles 2) special protections for types of data [geo-location, biometrics, non-consensual intimate images]
- **Youth Protections**: added data protection for users under 17, no targeted ads, creates a Youth Privacy and Marketing Division at the FTC
- **Civil Rights and Algorithms**:
  - (a) covered entities could not use covered data on the basis of protected characteristics (race, gender, sexual orientation)
  - (b) require large data holders to conduct **algorithm impact assessments**
- **Private Right of Action:** 4 years after enactment, affected individuals would have the right to sue (FTC or state AG must be notified)
- **Transparency**: entities must disclose 1) the type of data collected, 2) what they use it for 3) how long they keep it 4) is data available to China, Russia, Iran, or North Korea?

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ADPPA:
The Details, Continued

- **Third-Party Collecting Entities**: means "**data brokers**" [i.e., "entity whose main source of revenue comes from processing or transferring data that it does not directly collect from consumers"] must 1) comply with auditing from the FTC and 2) register with the FTC if they collect data above a set threshold
- **Data Security:** entities must have **data security practices** that are "reasonable" for their size and activities. FTC is authorized to issue regulations explaining "reasonable"
- **Small- and Medium-Sized Businesses**: exempts smaller businesses from some requirements (like a requirement to delete data off their site if requested)
- **Enforcement**: FTC can enforce, under existing law **and** state's AG (in civil actions)
- **Preemption**: preempts most state laws **except for** state laws covering consumer protection laws (general) and data breach notification laws

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NAIC Response to Big Data and Consumer Privacy Concerns

- NAIC stands for “National Association of Insurance Commissioners”
- This is NOT a regulatory body – meaning the NAIC is national, but it does not have jurisdiction to prosecute individuals or companies
- Instead, the NAIC “provides expertise, data, and analysis for insurance commissioners to effectively regulate the industry and protect consumers.” [quote taken from www.naic.org]
- NAIC Model Laws are published as **examples** for state regulators (not mandatory) to use in writing state laws

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#668: “NAIC Insurance Data Security Model Law”

- Establishes data security standards for regulators/insurers, to mitigate [minimize] the potential harm to consumers resulting from a data breach
- Requires insurers and licensed entities to 1) create an information security program, based on risk assessment, and 2) designate an employee to lead this program/to be responsible
- Also requires any entity licensed by their state’s Department of Insurance to investigate any cybersecurity events, as well as notify the same Department’s Commissioner or Director of Insurance
- Model Law #668 was developed in response to “high-profile data breaches of insurers and other institutions.”
- Has been adopted by 11 states AL, CT, DE, IN, LA, MI, MS, NH, OH, SC, and VA

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#670: “NAIC Insurance Information and Privacy Protection Model Act”

Major Elements/Purpose:

- (1) establishes standards for collection, use, and disclosure of personal info in insurance, with a goal of minimizing intrusiveness
- (2) make sure consumers can (a) see what info has been or is being collected about them and (b) have the right to access said info to verify or dispute the accuracy
- (3) limit disclosure of info collected during insurance transactions
- (4) enable applicants and policyholders to ascertain reasons for adverse underwriting decisions

Model Act #670 has been adopted in 17 states: AZ, CA, CT, GA, IL, KS, ME, MA, MN, MT, **NE**, NJ, NC, OH, OR, VA, WI

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#672: “NAIC Insurance Information and Privacy Protection Model Act”

Major Elements/Purpose

Covers how **personal health info** and **personal financial info** about individuals are treated by any entity or person licensed by their state Department of Insurance (“licensees”)

(1) Requires licensees to provide notice to individuals about its privacy policies and practices
(2) Describes situations where disclosure of this protected personal information may be shared with affiliates or third parties
(3) Provides methods for individuals to prevent a licensee from releasing protected personal information

NOTE: #672 is designed to ensure compliance with Title V of the Gramm-Leach-Bliley Act (PL 102-106), federal law covering disclosure by companies to consumers of privacy protection practices

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All These Facts Are Fake: Synthetic Data in Health Insurance

- Anthem, a health insurance co., partnered with Google Cloud to experiment with pushing the limits of data analytics

- Privacy concerns with “identifiable” personal info
  - Solution → “synthetic” [i.e., fake] data. Resembles health information, but since it doesn’t relate to a person, there are no concerns about a breach.
    - “synthetic” data can also be real data, but stripped of identifying characteristics, so again, no privacy concerns
  - **But synthetic data can still be analyzed, helping data scientists study it.**
  - Goals are to detect fraud better and offer personalized care to policyholders **through training algorithms on this synthetic data**

Thaler v. Vidal; or The Limits of "Creative Machines"

- What are Creativity Machines?
  - Created by Dr. Stephen Thaler
  - Creativity Machines are AI so complex they can "create" new systems/computer programs on their own
- Who is Dr. Stephen Thaler?
  - He (his own words): "develops and runs AI systems that generate patentable inventions"
  - One of these systems is named "Device for the Autonomous Bootstrapping of Unified Science" or DABUS
- *Thaler v. Vidal:*
  - Dr. Thaler, on behalf of DABUS, filed 2 patents with the US Patent and Trademark Office, naming DABUS as the inventor on the patent forms
  - Both were rejected by Patent Office, who said "a valid inventor must be listed on a patent"

Thaler v. Vidal: "Oh, the Legality!" Or; Conclusions of Law

- After Dr. Thaler's appeal to the Patent Office's Director was denied, he applied for judicial review of the Patent Office's decision, moving the case to federal court

- Federal Administrative Court agreed with Patent Office: an inventor must be an "individual," under the Patent Act, AI does not qualify, no matter how advanced

- Plain meaning of "individual" as used in the statute is a natural person:

  - "This court has explained many times over many years when the meaning of the statute's terms is plain, our job is at an end."
    - *Bostock v. Clayton County*, 140 S. Ct. 1731, 1749 (2020)

Big Data's Effect On the Insurance Industry and Future Trends

Traditional Insurance Industry:

- Use actuaries and actuarial data to set rates, determine coverage and product needs

Modern Insurance Industry:

- Companies like Lemonade (Auto/Homeowners/Pet/Rent/Life Insurance) and Traffk ("Data Driven Insurance Underwriting and Distribution Platform") have emerged as successful alternatives to 'traditional' insurance companies

- GlobalData predicted in April 2021 that AI platform revenues within insurance would grow 23% to $3.4 **billion** by 2024

- Likely trends indicate insurers may start to incorporate more data processing into their business, to both keep up with new competitors in the market and improve efficiency and convenience of purchasing insurance products.

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Want to Learn More?
Come to “Insurtech on the Silicon Prairie”

- This is a two day, in-person event hosted by the Nebraska Department of Insurance and the Nebraska Insurance Federation
- October 24: networking event at the Omaha zoo
- October 25: Lecture series held at the Holland Performing Arts Center in Omaha (the conference will also have an option to attend virtually)
- What is “Insurtech on the Prairie”?
  - An event that “bring[s] national experts, companies, and regulators to Omaha for a one-of-a-kind conference focused on the rapidly changing insurance landscape and technology.
- Register Here: Insurtech on the Silicon Prairie Registration (whova.com)

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Questions?

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