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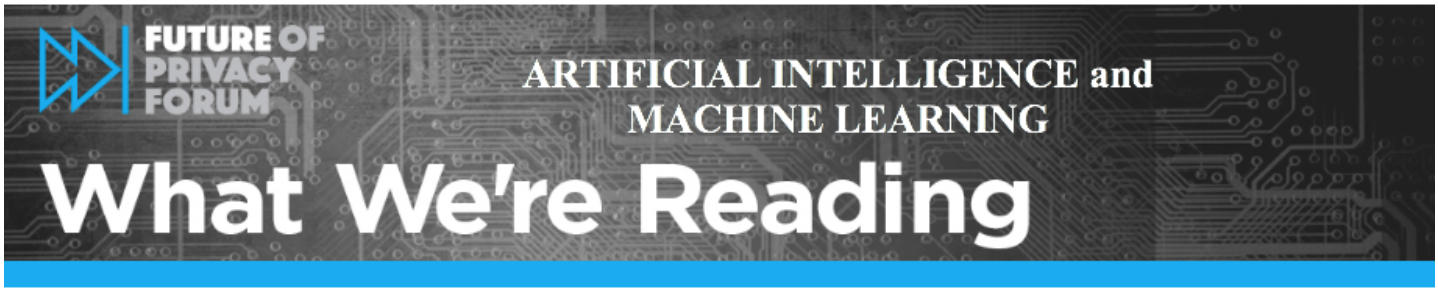
[FPF AI Working Group] Monthly AI/ML "What We're Reading" Newsletter and Updates

1 message

Brenda Leong <bleong@fpf.org> Wed, Jul 18, 2018 at 5:20 PM
To: artificial-intelligence-wg@fpf.org

<< **Please note**: There will be **NO AI Working Group call in August**. We will resume our calls on September 10th at 3:00 Eastern time. >>



Summary of articles, reports, and updates on AI and related topics
July 18, 2018

NEW FROM FPF:

Beyond Explainability: A Practical Guide to Managing Risk in Machine Learning Models, June 2018, FPF with Immuta. "This short white paper aims to provide a template for effectively managing this risk in practice, with the goal of providing lawyers, compliance personnel, data scientists, and engineers a framework to safely create, deploy, and maintain ML, and to enable effective communication between these distinct organizational perspectives. The ultimate aim of this paper is to enable data science and compliance teams to create better, more accurate, and more compliant ML models."

FPF Partners with Optimity for AlgoAware Project

The AlgoAware study was procured by the European Commission to support its analysis of the opportunities and challenges emerging where algorithmic decisions have a significant bearing on citizens, where they produce societal or economic effects which need public attention.
The study is carried out by Optimity Advisors and follows a call from the European Parliament for a pilot project supporting algorithmic awareness building. FPF is a partner in this project.

The objectives of the study include:

- contributing to a wider, shared understanding of the role of algorithms, particularly in the context of online platforms, with the intention of raising public awareness and debate of emerging issues;
- identifying the types of problems, emerging issues and opportunities raised by the use of algorithms, and establish a scientific evidence-base for these issues and opportunities; and
- designing and prototyping a policy toolbox including solutions for a selection of problems, including policy options, technical solutions and private sector and civil society-driven actions.

The study will follow a policy design methodology resting on the analysis of scientific evidence as well as a robust stakeholder engagement. We aim to engage with a range of stakeholders across diverse sectors as we seek to map the areas of interest where algorithmic operations bear significant policy implications. To keep up to date with the debate and project updates, sign-up for the Algo-Aware newsletter here.

MONTHLY NEWS UPDATES:

In Law and Government

- U.S. Legislative and Regulatory News
  - **The government is well-positioned to flag specific research areas that would have the biggest impact on national interests**. July 11, 2018, Nextgov.com. As this article describes, "The Trump administration has taken a largely hands-off approach in regards to AI, arguing it's still too early for the government to get involved in the technology and any attempts at oversight could stifle its growth. But in a panel hosted Wednesday by *Politico*, experts were quick to point out the difference between burdening industry with regulations and addressing the issues at hand today."

  - **Improving Federal Regulation of Medical Algorithms**, July 4, 2018, The Regulatory Review. in a recent paper, a legal scholar argues that federal regulatory reforms must occur to unleash the full lifesaving potential of algorithms in health care. Nicholson Price, a professor at University of Michigan Law School, claims that the U.S. Food and Drug Administration (FDA) lacks the necessary expertise in computer science to apply its current regulations to medical algorithms and, as a result, could discourage much-needed innovation.

- International Legislation
  - **New Rules to Speed AI-Based Medicine in Japan**, June 26, 2018, Nikkei Asian Review. This article discusses the Japanese government's intent to create comprehensive rules governing the use of AI in medical equipment, with the goal of speeding deployment of tools to improve accuracy and efficiency in the health care system, as Japan faces the burdens of an aging population.

- National AI Strategies
  - **An Overview of National AI Strategies**, July 13, 2018. Medium, Tim Dutton. This post summarizes the key policies and goals of over 10 countries that have published strategies in the last 10 months regarding their AI policies and initiatives. It is continuously updated as new programs are published, or existing ones are updated.

AI/Machine Learning in the News

- Algorithms and Datasets
  - **What we buy can be used to predict our politics, race or education – sometimes with more than 90 percent accuracy**, July 9, 2018, WaPo. Reporting on the "cultural divide" as demonstrated by various market and social choices, WaPo describes how the University of Chicago Booth School of Business economists Marianne Bertrand and Emir Kamenica taught machines to guess a person's income, political ideology, race, education and gender based on either their media habits, their consumer behavior, their social and political beliefs, and even how they spent their time. Their results were released in a new working paper from the National Bureau of Economic Research.

  - **Bias Detectives: The Researchers Striving to Make Algorithms Fair**, June 20, 2018, Nature, International Journal of Science. Describing how as machine learning infiltrates society, scientists are trying to help ward off injustice.

  - **Algorithms and Justice: The Berkman Klein Center for Internet & Society Examines the Role of the State in the Development and Deployment of Algorithmic Technologies**, July 9, 2018, Medium. This post looks at "some of the lessons we've learned over the last year in our work as part of the Ethics and Governance of AI Initiative, a collaboration of the Berkman Klein Center and the MIT Media Lab, exploring the ways in which government institutions are increasingly using artificial intelligence, algorithms, and machine learning technologies in their decision-making processes."

- AI and Transportation
  - **Videos of You Driving Will Teach Cars to Drive Themselves**, June 14, 2018, Forbes. Describing the project from Nexar, an Israeli AI-dashcam company, announced a major tie-up with the University of California, Berkeley to release the world's largest dataset of annotated visual driving scenes that could help researchers and companies train self-driving cars. Nexar says the BDD100K dataset is the largest and most diverse open driving dataset for computer vision research, consisting of 100,000 videos.

- AI and Smart Cities
  - **Unlocking the Power of AI Should be a Priority for Infrastructure Leaders**, July 16, 2018, Forbes. This article describes how "As a growing number of municipalities set their sights on becoming "smart cities," it's important to remember that automation, sensors and data are only the beginning. Once you've established more automated systems and collected more granular data, you have to figure out what to do with it. Artificial intelligence and machine learning can help shoulder that burden by managing those systems and making use of that data, marrying physical and digital technologies in ways that help maintain the infrastructure we have while improving it in ways we never thought possible."

- AI and Health
  - **10 Promising AI Applications in Health Care**, May 10, 2018, Harvard Business Review. HBR reports: "The field of health AI is seemingly wide—covering wellness to diagnostics to operational technologies—but it is also narrow in that health AI applications typically perform just a single task. We investigated the value of 10 promising AI applications and found that they could create up to $150 billion in annual savings for U.S. health care by 2026."

- AI and Education
  - **4 Ways AI is Changing the Education Industry**, April 12, 2018, Medium post. "A recent study from eSchool News discovered that the use of AI in the education industry will grow by 47.5% through 2021 as we move towards a more connected world. The technology's impact will exist anywhere from Kindergarten through higher education, offering the opportunity to create adaptive learning features with personalized tools to improve the student experience. The technology may be able to better inform students what their job prospects may look like based on their particular narrative as well, helping them beyond their academic life."

  - **FaceMetrics lands $2M to gamify kids' screen time and track immersion, with AI**, June 13, 2018, Venture Beat. Enter FaceMetrics, which today announced it has landed $2 million in funding to build an AI assistant that reports tablet activity (iOS and Android) to parents and gamifies control of kids' screen time.

- FPF Member Companies in the AI News
  - **Facial Recognition Technology: The need for public regulation and corporate responsibility**, July 13, 2018, Microsoft Blog. "Facial recognition will require the public and private sectors alike to step up – and to act. We've set out below steps that we are taking, and recommendations we have for government regulation."

  - **AI at Google: Our Principles**, June 7, 2018. Sundar Pichai, Google's CEO announces: "As a leader in AI, we feel a deep responsibility to get this right. So today, we're announcing seven principles to guide our work going forward. These are not theoretical concepts; they are concrete standards that will actively govern our research and product development and will impact our business decisions."

  - **Apple's Plans to Bring Artificial Intelligence to Your Phone**, June 6, 2018, Wired. Craig Federighi, Apple's head of software, is tasked with keeping that wellspring of new ideas flowing. One of his main strategies is to get more app developers to use artificial intelligence tools such as recognizing objects in front of an iPhone's camera. The hope is that will spawn a new generation of ideas from Apple's ecosystem of outsourced innovation.

  - **Facebook, Boosting AI Research, says It's Not Going Fast Enough**, July 17, 2018, WaPo. The world's biggest social network said it would recruit high-profile engineers and expand its AI-research division to roughly 170 scientists and engineers across eight global offices, including Paris, Pittsburgh, Montreal, London and Tel Aviv. The expansion of the international labs and new academic partnerships will be devoted to the study of robotics, virtual animation, learning machines and other forms of AI.

- Robots, Home Assistants, and Personalized AI
  - **Brookings Survey finds 52% believe robots will perform most human activities in 30 years**, June 21, 2018. Fifty-two percent of adult internet users believe within 30 years, robots will have advanced to the point where they can perform most of the activities currently done by humans, according to a survey undertaken by researchers at the Brookings Institution. The poll also found people divided 32 to 29 percent regarding whether the U.S. government should set up a Federal Robotics Commission to regulate robot development and usage. This survey was undertaken by researchers at the Brookings Institution through an online U.S. national poll of 2,021 adult internet users between June 4 and 6, 2018. It was overseen by Darrell M. West, vice president of Governance Studies and director of the Center for Technology Innovation at the Brookings Institution and the author of The Future of Work: Robots, AI, and Automation. Responses were weighted by gender, age, and region to match the demographics of the national internet population as estimated by the U.S. Census Bureau's Current Population Survey.

- Blockchain
  - **The Future of Mobility, Fueled by AI and Distributed Ledger Technology**, June 29, Medium. This post describes the future scenario where "the demand for data capturing by automotive manufacturers is creating a shift in the traditional mobility business model. To capture this data, vehicles are starting to have their own digital identity and digital wallets, built on distributed ledger technology (DLT). For instance, the transactional data from re-fueling at a gas station is currently on a credit card, but soon will be housed on a digital wallet owned and operated by a car… In a world that is accelerating the rate of connected devices, it becomes increasingly important for AI and DLT service providers to understand how the two systems interact to create value and revenue generating opportunities."

International

- **Here are the Experts who will help shape Europe's AI policy**, June 14, 2018, TechCrunch. As reported here, the European Commission has announced the names of 52 experts from across industry, business and civil society who it has appointed to a new High Level Group on AI which will feed its strategy and policymaking around artificial intelligence. The full list is available here.

- **Study on the Human Rights Dimensions of Automated Data Processing Techniques (in particular Algorithms) and Possible Regulatory Implications**, March 2018. Committee of Experts on Internet Intermediaries. Commissioned in 2016, "this study identifies a number of human rights concerns triggered by the increasing role of algorithms in decision-making. Depending on the types of functions performed by algorithms and the level of abstraction and complexity of the automated processing that is used, their impact on the exercise of human rights will vary. Who is responsible when human rights are infringed based on algorithmically-prepared decisions? The person who programmed the algorithm, the operator of the algorithm, or the human being who implemented the decision? Is there a difference between such a decision and a humanmade decision? What effects does it have on the way in which human rights are exercised and guaranteed in accordance with well-established human rights standards, including rule of law principles and judiciary processes?"

- **Artificial Intelligence and Privacy, Office of the Victorian Information Commissioner (Australia),** June 2018. This issues paper "is an introduction to a wider conversation regarding information privacy and AI. It is written for a non-technical audience and does not endeavour to solve questions posed, nor provide legal guidance. It should be noted that there are many other ethical, technical and legal issues associated with AI that are beyond the scope of this document. The final page of the paper contains a list of suggested further readings, some of which delve into these other important issues."

- **Statement on AI, Robotics, and Autonomous Systems, European Group on Ethics in Science and New Technologies**, March 2018. The ECE statement "calls for the launch of a process that would pave the way towards a common, internationally recognised ethical and legal framework for the design, production, use and governance of artificial intelligence, robotics, and 'autonomous' systems. The statement also proposes a set of fundamental ethical principles, based on the values laid down in the EU Treaties and the EU Charter of Fundamental Rights, that can guide its development."

Academic Research, Reports, and Books

- **Algorithms that Remember: Model Inversion Attacks and Data Protection Law**, July 12, 2018. M. Veale, R. Binns, L. Edwards. Abstract: Many individuals are concerned about the governance of machine learning systems and the prevention of algorithmic harms. The EU's recent General Data Protection Regulation (GDPR) has been seen as a core tool for achieving better governance of this area. While the GDPR does apply to the use of models in some limited situations, most of its provisions relate to the governance of personal data, while models have traditionally been seen as intellectual property. We present recent work from the information security literature around 'model inversion' and 'membership inference' attacks, which indicate that the process of turning training data into machine learned systems is not one-way, and demonstrate how this could lead some models to be legally classified as personal data. Taking this as a probing experiment, we explore the different rights and obligations this would trigger and their utility, and posit future directions for algorithmic governance and regulation.

- **The Right to Explanation, Explained**, June 19, 2018, M. Kaminski, SSRN. Abstract: Many have called for algorithmic accountability: laws governing decision-making by complex algorithms, or AI. The EU's General Data Protection Regulation (GDPR) now establishes exactly this. The recent debate over the right to explanation (a right to information about individual decisions made by algorithms) has obscured the significant algorithmic accountability regime established by the GDPR. The GDPR's provisions on algorithmic accountability, which include a right to explanation, have the potential to be broader, stronger, and deeper than the preceding requirements of the Data Protection Directive. This Essay clarifies, largely for a U.S. audience, what the GDPR actually requires, incorporating recently released authoritative guidelines.

- **An Evaluation of Equity in the Boston Public Schools' Home-Based Assignment Policy**, July 2018, Boston Area Research Initiative. Four years after the full implementation for the kindergarten and 6th grades, the Boston Area Research Initiative (BARI) worked with BPS to evaluate the Home Based Assignment System and its impacts on the district, with a particular eye toward the goals of increasing equitable access to high quality schools and decreasing the distance students travel to school (i.e., good schools, close to home). To what extent did HBAP achieve its goals of access to high quality schools close to home? Did it either mitigate or exacerbate inequities in access and assignment to quality schools across neighborhoods, racial and socioeconomic groups, and students in general education, English Language Learner, and Special Education programs? Did the focus on local access help communities to build "neighborhood schools"? Did it unintentionally increase racial or economic segregation of Boston's students? The full report addresses each of these questions.

- **How Using Algorithms Can Worsen Inequality**, Jun 12, 2018. Podcast and transcript of interview with Virginia Eubank, author of Automating Inequality. "Algorithms — a set of steps computers follow to accomplish a task — are used in our daily digital lives to do everything from making airline reservations to searching the web. They are also increasingly being used in public services, such as systems that decide which homeless person gets housing. Virginia Eubanks, political science professor at the State University of New York at Albany, thinks this kind of automation can inadvertently hurt the most vulnerable."

Final note: **Privacy War Games**

The Future of Privacy Forum & The Providence Group invite you to participate in the inaugural Privacy War Games event on November 12th, from 9:00 am - 4:00 pm, in San Jose, California. The event will take place at Cisco's Headquarters, located at 255 West Tasman Drive, Building J, San Jose, CA 95134. More info here: https://www.eventbrite.com/e/privacy-war-games-tickets-46370583664 and here: https://fpf.org/2018/06/26/privacy-war-games/

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