

Intellectual Property in the Era of Machine Learning

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Artificial Intelligence

- General AI: a system that can perform any generalized task that is asked of it, much like a human, but faster and better (Ex Machina)
- Narrow AI: a computer system that performs highly specialized tasks for humans, within a narrow domain of knowledge (spam filters, Spotify, Tesla)
- 1997: IBM's Deep Blue
- 2016-2017: Google Deepmind's AlphaGo & AlphaGo Zero



Traditional Software vs. Machine Learning

- Traditional Software: Hand coding; human driven
 - E.g., IBM's Deep Blue
- Machine Learning: System learns from (big) data
 - E.g., Google Deepmind's AlphaGo & AlphaGo Zero
 - Spam the old way: If the email contains the word "pizza" then, ... (but not if it contains "p1zza").
 - Spam the new way: the ML system learns from training data to find spam.
 - **Deep Learning:** A subset of machine learning
 - Depends on neural network (interconnected GPUs)
 - No human programmers necessary; data driven



Legal Issues with AI

➤ Bias

- Interaction bias
- Latent bias
- Selection bias

➤ Privacy

- FTC Act
- HIPPA
- GDPR

➤ Product Liability

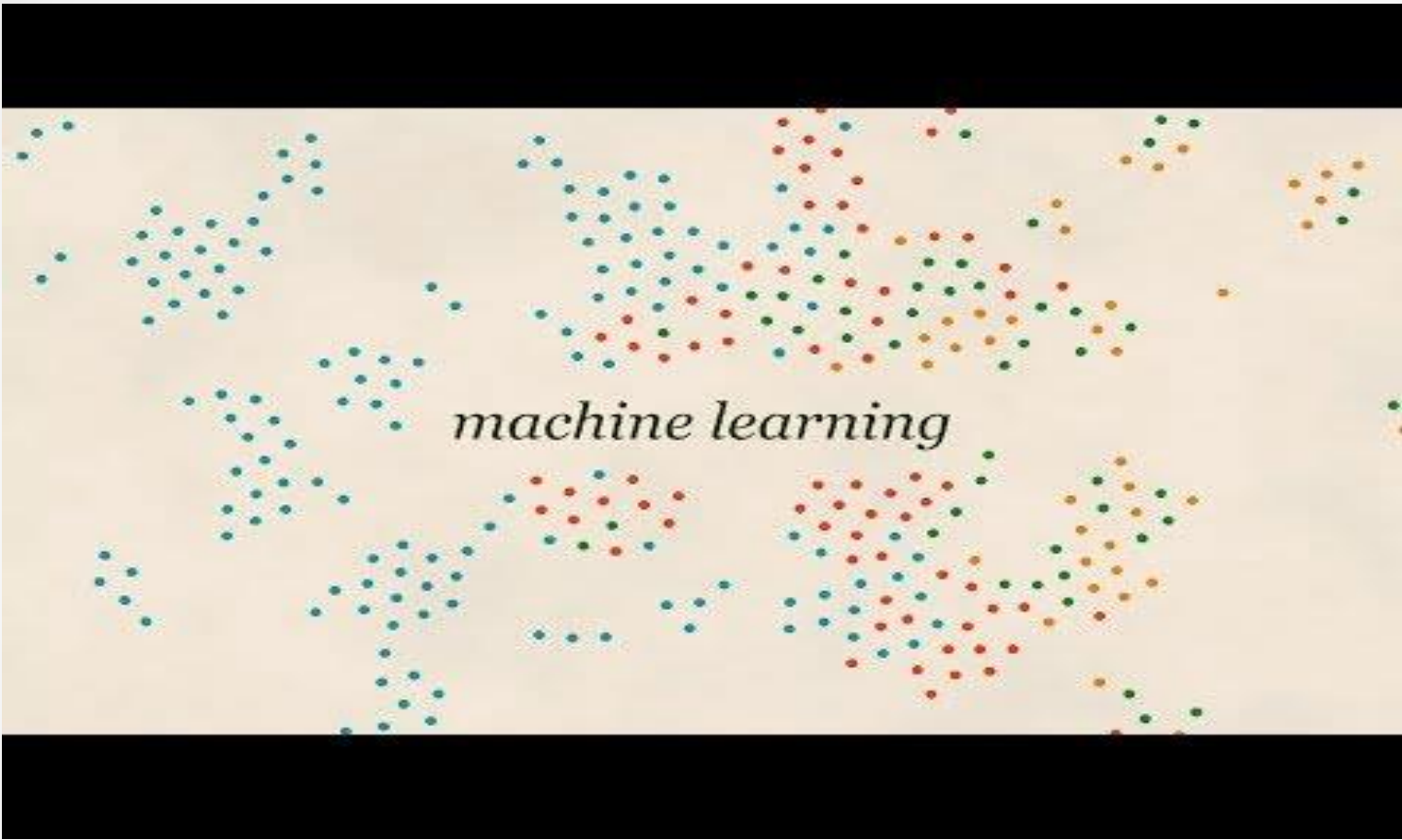
- FTC Act
- HIPPA
- GDPR

➤ Antitrust Liability

- Algorithmic pricing

Bias

- Interaction bias: Users create biases in an algorithm by the way they interact with it.
- Latent bias: The algorithm incorrectly correlates ideas with gender, race, sexuality, income, etc.
- Selection bias: The data used to train the algorithm over-represents one population, making it operate better for them at the expense of others.
 - Source: Google explains how artificial intelligence becomes biased against women and minorities. ZQ.com article by Dave Gershgorin August 28, 2017



machine learning

Privacy

- FTC Act: consider whether your clients are violating any material promises to consumers or whether they have failed to disclose material information to consumers (also need to take reasonable measures to secure consumer data).
- HIPPA: Aggregation of protected health information is only allowed without a patient authorization for "Data Aggregation Purposes" (I.e, to help a covered entity improve healthcare operations)
- GDPR : Article 22 "The data subject shall have the right not to be subject to a decision **based solely on automated processing**, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her."

GDPR exceptions for AI

- Exceptions to GDRP Article 22:
 - Where the decision is necessary for entering into, or performance of, a contract between the data subject and a data controller;
 - Where the decision is authorized by Union or Member State law to which the controller is subject and which also lays down suitable measures to safeguard the data subject's rights and freedoms and legitimate interests; and
 - Where the decision is based on the data subject's explicit consent.

Product Liability

- Tort law will likely apply. Courts will need to allocate fault among product manufacturers/sellers, AI designers/suppliers, and AI purchasers/users.
- A key question will be whether AI is a product or service
 - If a product, strict liability applies to flaws in product design, manufacture, or warnings that cause personal injury or property damage to others.
 - If a service, a negligence standard applies, such as data analysis to determine maintenance.
- For now, make sure your clients are using solid contractual warranties, indemnities, and limitations of liability with their users (and that the users understand the limitations of the AI).

What about IP?

"Demand for IP rights continues to surpass economic growth rates around the world. The IP system as we know it is certainly not going out of fashion. It is being used more than ever before. But new challenges are emerging and the result may be an additional layer of IP, rather than the replacement of the existing system."

WIPO Director General, Francis Gurry

September 2018



Who is leading the charge?

- IP filings worldwide in 2016:
 - 3.1 million patent applications
 - 7 million trademark applications
 - 963,000 industrial design applications (covering 1.2 million designs)
- AI-linked patent applications were 0.6% of global patent applications (and growing)
- IBM the leader at 8,920 AI patents
 - Microsoft comes in second at 5,930 AI patents
- China had 17 of top 20 academic institutions

How to Manage it All?

- WIPO Translate for patents
 - Shared with member organizations and patent offices around the world
 - All can use the tool and all can supply data to improve it
- WIPO Global Brand Database for trademarks
 - Now integrates an AI-powered search technology
 - Makes it faster and easier to establish the distinctiveness of a mark in a target market
- WIPO and other IPO's are exploring other AI uses:
 - Automatic classification of patents and goods/services for trademark applications
 - Search of patent prior art and figurative elements of trademarks
 - Examination and formalities checks for trademarks and patents
 - Helpdesk services (automatic replies to client)
 - Machine translation, linguistic tools and terminology
 - Data analysis for economic research

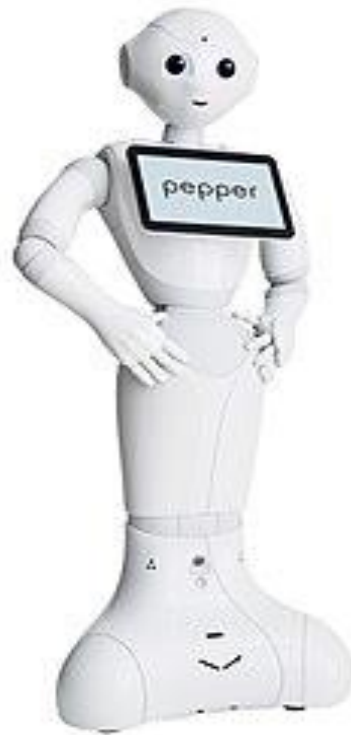
IP Infringement and AI, part 1

- **Lush v. Amazon case** (Cosmetic Warriors Limited and Lush Limited v Amazon.co.uk Limited and Amazon EU SARL [2014] EWHC 18)
 - Lush owns the Community trade mark for "Lush" for cosmetics and toiletries, including soap, and sued Amazon for trademark infringement under the following scenarios:
 - the consumer types the word "Lush", or phrase containing "Lush", into a search engine such as Google (Amazon bids on Google Adwords);
 - the consumer types the word "Lush" into the search facility on the amazon.co.uk website (Amazon dropdown menu shows other products).
 - Holding: The average consumer would not, without difficulty, ascertain that the goods referred to by the Google ad were not goods offered by Lush. Also, by virtue of the dropdown menu, Amazon was using the Lush trade mark as a generic indicator of a class of goods, conduct that harmed the ability of the Lush mark to act as a guarantee of origin. Under both scenarios, there was infringement.

IP Infringement and AI, part 2

- Google France cases (Joined Cases C-236/08, C-237/08 and C-238/08CJEU, March 23 2010):
 - Question presented: does the use by Google, in its AdWords advertising system, of keywords corresponding to trademarks constitute an infringement of those trademarks?
 - Google was not held liable for trademark infringement in the automated Adword suggestion system, unless it was put on notice of specific infringing activity. The court didn't want to interfere with the Adword system as a basic form of AI which assists retailers in the promotion of their websites through search engine optimization.

What's our Future?



**PEPPER THE
HUMANOID
ROBOT**

TECH
INSIDER

