



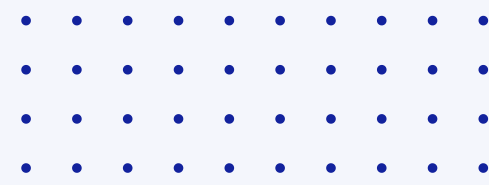
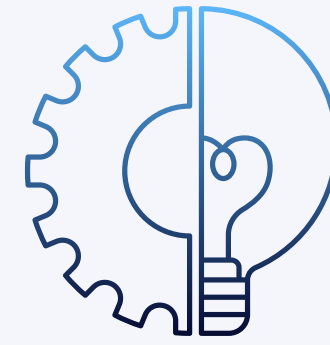
Introduction to

# Deep Learning for Business

Semester-I (AY2022-23) MPBA G514

**1-Sep-2022**

**Instructor:**  
**Revendranath T**

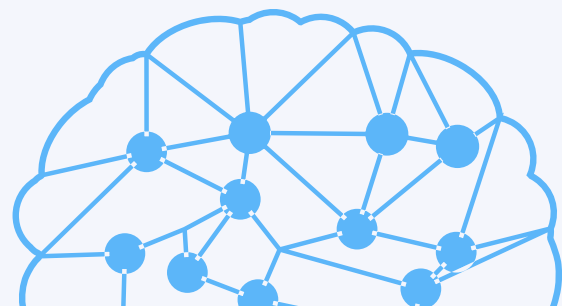
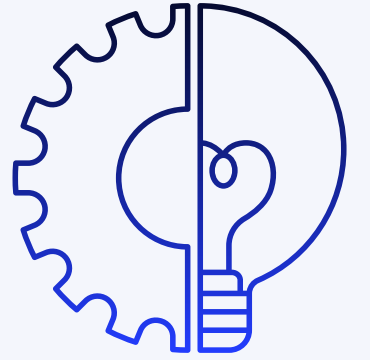




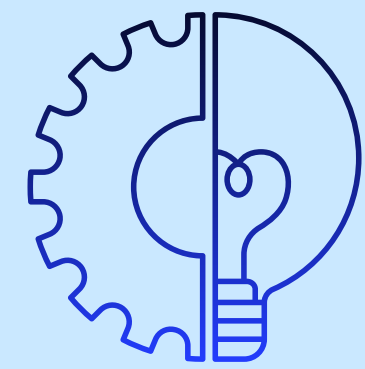
# Where is AI Headed?

## Melanie Mitchell opines

- The experimental stage — the use of so-called language models to translate human language into instructions for a robot.
- So if you want your household robot to bring [something], you can say that in natural language to these language models and the language model would translate it into some computer code that the robot could follow.



# AI Developments



AUGUST 30 2022



Sarah O'Connor

## Actors worry that AI is taking centre stage

Synthetic voices may not be as good but they can still threaten human talent's work and rights



AUGUST 25 2022



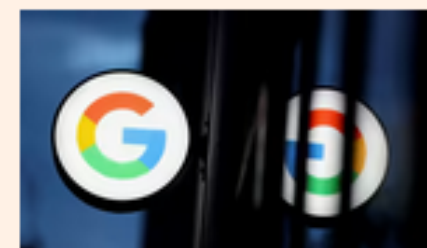
John Thornhill

## Democracies must use AI to defend open societies

Authoritarian regimes will not hesitate to misuse the technology



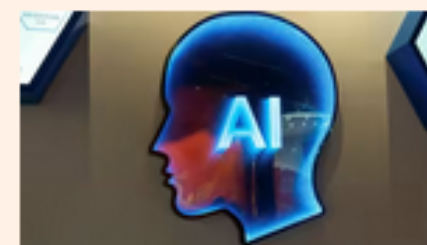
JUNE 13 2022



Lex

## Google/AI: verdicts of life sentence point to risks and rewards of NLP Premium

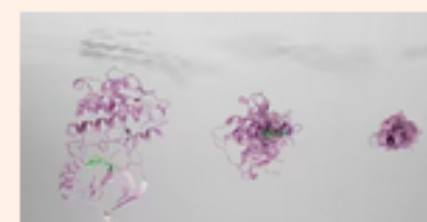
Governments and business need to start setting rules for the deployment of natural language processing



## Google places engineer on leave after he claims group's chatbot is 'sentient'

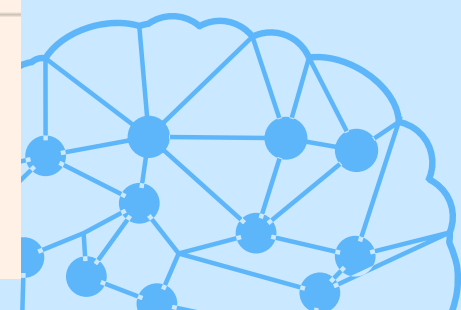
Blake Lemoine ignites social media debate over advances in artificial intelligence

JUNE 11 2022



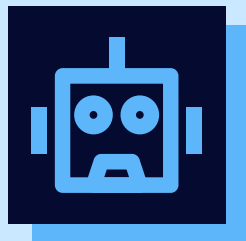
Biotech

## Investors bet on AI start-ups to turbocharge drug development

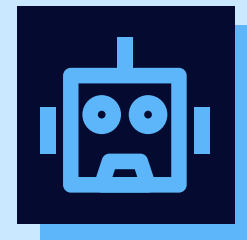
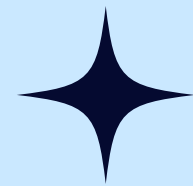




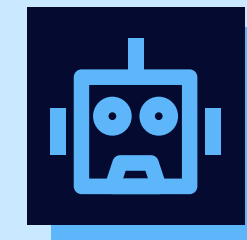
# Interesting AI Challenges Pursued



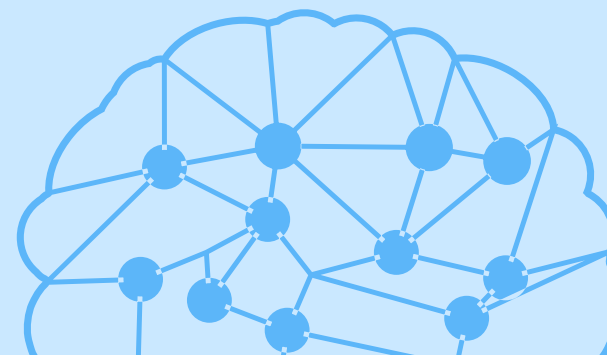
**IBM Weather Channel**



**Optum**



**Apple Cards**



# IBM Weather Channel



**Never get caught in the rain again with this powerful, free mobile weather app for iPhone, iPad and Apple Watch. Stay informed with reliable forecasts, interactive radar and real-time rain alerts, backed by the most trusted name in weather -- The Weather Channel. It's the app users call "awesome" and the "best app on my phone."**

Product Description: <https://www.ibm.com/weather/apps>



# IBM Weather Channel



# IBM Weather Channel



The Weather Channel app is one of the more popular services in the United States. It's the number one app in the "Weather" category on iOS, and the company claims that in 2019, the app had over 50 million active users worldwide. IBM acquired the digital portion of The Weather Channel in 2015.

Source: <https://tinyurl.com/mspu6hub>

# **IBM Weather Channel**

What could go wrong?



# IBM Weather Channel

What could go wrong?

- **Los Angeles has settled its lawsuit against the operator of The Weather Channel app. The city filed litigation against the company in 2019, alleging that the app misled millions of people into granting access to their personal location data and sold that data to third parties.** Source: <https://tinyurl.com/mspu6hub>
- **When users download the app, a prompt asks them to grant access to their location so the app can provide “personalized local weather data, alerts and forecasts.” The app then tracks the user’s movements, allowing the Weather Company, which operates the app independent of the Weather Channel and uses its data to fuel IBM’s Watson Advertising products, to sell that information to hedge funds, advertising firms and corporate clients like McDonald’s and Subway.**
- **The Weather Channel app for Android also shares private user data with Facebook — even if the users don’t have a Facebook account — along with other popular Android apps.** Source: <https://lat.ms/3R3qcZ5>

# Case of Optum

**Making health care simpler and more effective for everyone**

- **The algorithm used past medical use and spending to predict patients' future health care costs, then used cost to rank their medical needs.**
- Hospitals and insurers in the U.S. use the Optum tool to identify diabetes and other chronic-disease patients who should receive extra assistance such as home-care visits, help managing medicines and support coordinating doctor appointments.
- The group posted \$5 billion in profits in the third quarter of 2019 driven largely by strong performance by Optum, which posted double-digit growth for both revenue and earnings in the quarter.
- Source: <https://tinyurl.com/2x4c8n7a>
- **What are the pros and cons of this algorithm?**

# Case of Optum

**Making health care simpler and more effective for everyone**

- Spending for black patients was less than that for similar white patients, giving healthier white patients an edge.
- By relying on historic spending to triage and diagnose current patients, Optum's algorithm appears to inherently prioritize white patients who have had greater access to healthcare than black patients.
- Racial bias introduced despite considering 600 variables in predicting the costs in the model.
- Source: <https://tinyurl.com/28wxstd3>



# Gender Bias

- **Algorithm for Apple Cards developed by Goldman Sachs on credit availability showed 20 times more credit to male over female.** Source:  
<https://tinyurl.com/ycyjy8sc>
- **Amazon spent years to on AI hiring software and scrapped the project due to discriminatory results againsts women.**

**New York law prohibits discrimination against protected classes of individuals, which means an algorithm, as with any other method of determining creditworthiness, cannot result in disparate treatment for individuals based on age, creed, race, color, sex, sexual orientation, national origin, or other protected characteristics.**

# Google's Sidewalk Labs

- Faced backlash from citizens, and government officials to build IoT-fueled "Smart City" in Toronto.
- Lack of ethics in data handling was cited as a primary reason.
- Costed 2 years of work and USD 50 million

# Additional Readings

- Statement of Dr. Alex Hannah on Project Nimubs (Google) :  
<https://tinyurl.com/bdhh6anw>
- HBS Podcast: A Lesson from Google: Can AI Bias be Monitored Internally.
- A Practical Guide to Building Ethical AI by Reid Blackmang. The Year in Tech 2022 (Harvard Business Review Press)
- Melanie Mitchell: Seemingly 'sentient' AI needs a human in the loop. Financial Times (2022)