



What In-House Counsel Need to Know About Artificial Intelligence to Support the Business

 Association of Corporate Counsel  
ONTARIO



WIFI: GoodmansGuest  
Password: goodmans

Who said it?

“

**We're at a point now where we've built AI tools to detect when terrorists are trying to spread content, and 99 percent of the terrorist content that we take down, our systems flag before any human sees them or flags them for us.**

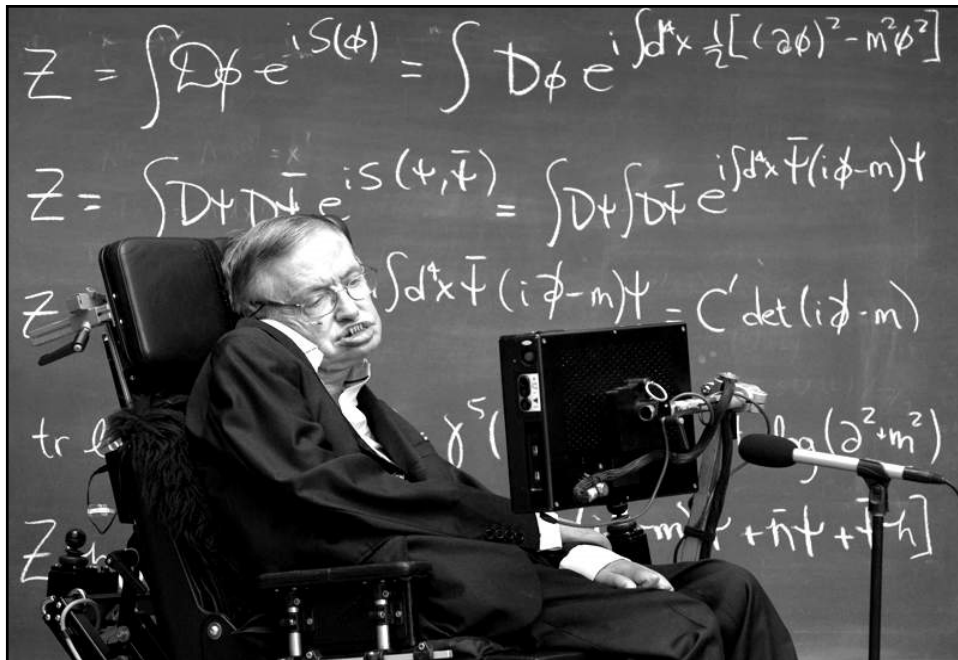
”



“

**Success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last, unless we learn how to avoid the risks.**

”



“

**Early AI was mainly based on logic. You're trying to make computers that reason like people. The second route is from biology: You're trying to make computers that can perceive and act and adapt like animals.**

”



# Panel



Peter Ruby  
Goodmans LLP



Cameron Schuler  
Vector Institute



Ben Hackett  
Goodmans LLP



Nagendra Krishnamurthy  
Tata Consultancy Services  
Canada Inc.

## Vector Institute

Using artificial intelligence (AI) to foster economic growth and improve the lives of Canadians

Cameron Schuler  
Chief Commercialization Officer & VP, Industry Innovation  
Nov 6, 2019



# Agenda

- AI in Canada
- What is AI?
- Practical Examples of AI

## AI in Canada

# Pan-Canadian AI Strategy

Collaborating with fellow AI institutions and academic partners across Canada

## CIFAR

In 2017, Canada was the first country to announce a national AI strategy. Combined, the three institutes under the Pan-Canadian AI Strategy represent a community of over **600 researchers**, including about **60 faculty**.

Edmonton



Montreal



Toronto



Université de Montréal McGill

# Canada Global Leader in AI

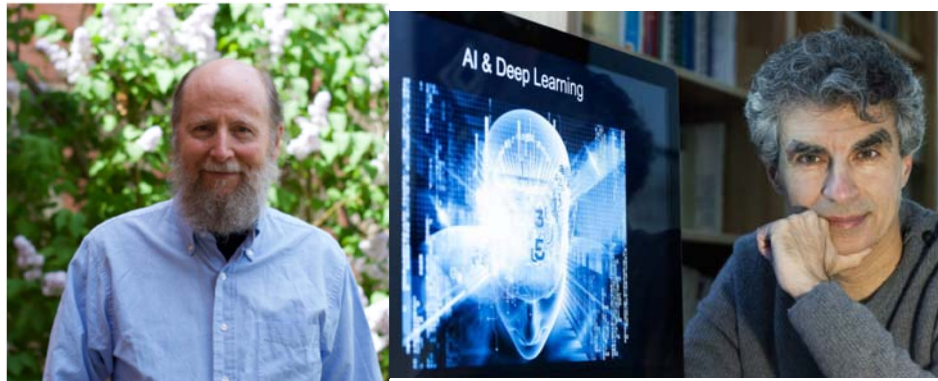
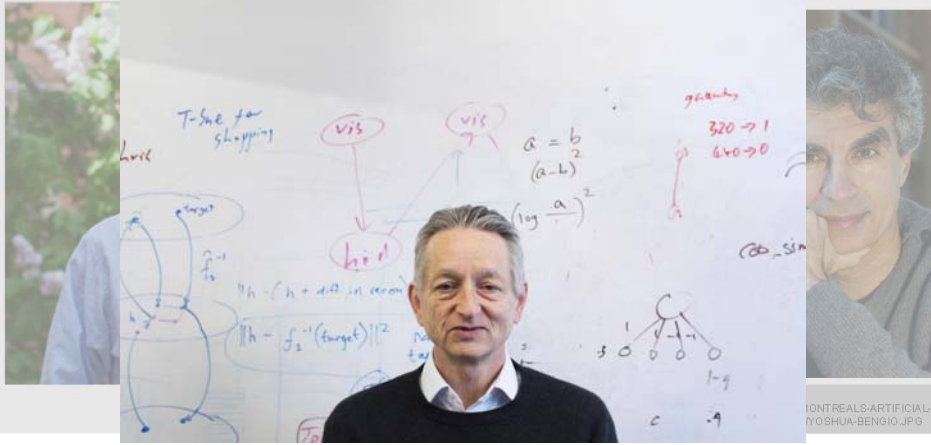


Photo: Amii

GRAHAM HUGHES / THE CANADIAN PRESS  
<https://www.thestar.com/content/dam/thestar/business/2016/11/21/montreal-s-artificial-intelligence-research-lab-attracts-major-tech-firms-like-google/yoshua-bengio.jpg>

## Canada Global Leader in AI



FRED LUM/THE GLOBE AND MAIL  
<https://beta.theglobeandmail.com/news/toronto/u-of-t-professor-geoffrey-hinton-hailed-as-guru-of-new-era-of-computing/article34639148/#c-image-0>

ONTREALS-ARTIFICIAL-  
 YOSHUA-BENGIO.JPG

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## Geoff Hinton – Godfather of Deep Learning

- Turing Award – 2019
- Co-Founder & Chief Scientific Advisor, Vector Institute
- Vice President and Google Fellow
- Bloomberg 50 Most Influential People – 2017
- Wired 100 list of global influencers – 2016
- Fellow: AAAI, Royal Society of Canada
- Awards
  - David E. Rumelhart prize
  - Killam prize for Engineering
  - NSERC Herzberg Gold Medal
  - IEEE James Clerk Maxwell Gold Medal



# Geoff Hinton – Godfather of Deep Learning

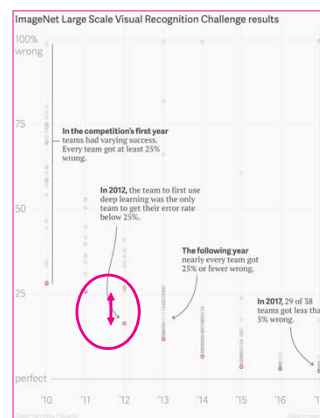
- Turing Award – 2019
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- Bloomberg 50 Most Influential People – 2017
- Wired **Most Cited Researcher: Computing Science & Artificial Intelligence**
- Fellow: AAAI, Royal Society of Canada
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## Single biggest shove: ImageNet 2012

"Indeed, **if the artificial intelligence boom we see today could be attributed to a single event**, it would be the announcement of the 2012 ImageNet challenge results." – Quartz magazine

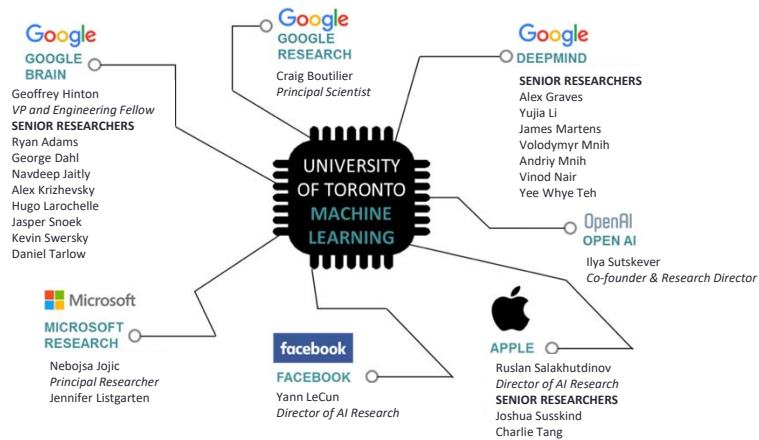


Ilya Sutskever, Alex Krizhevsky and University Professor Geoffrey Hinton of the University of Toronto's Department of Computer Science (photo by John Guatto)

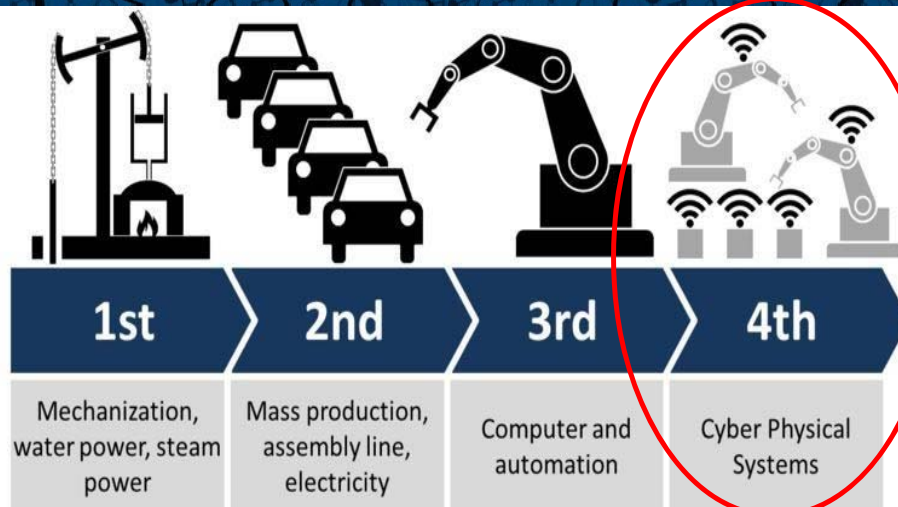


<https://qz.com/1034972/the-data-that-changed-the-direction-of-ai-research-and-possibly-the-world/>

## Graduates from Toronto lead AI labs in the world's top technology companies.



## The 4<sup>th</sup> Industrial Revolution



<https://www.weforum.org/agenda/2017/07/robots-have-been-taking-our-jobs-for-50-years-so-why-are-we-worried-now/>






## Why Learning?






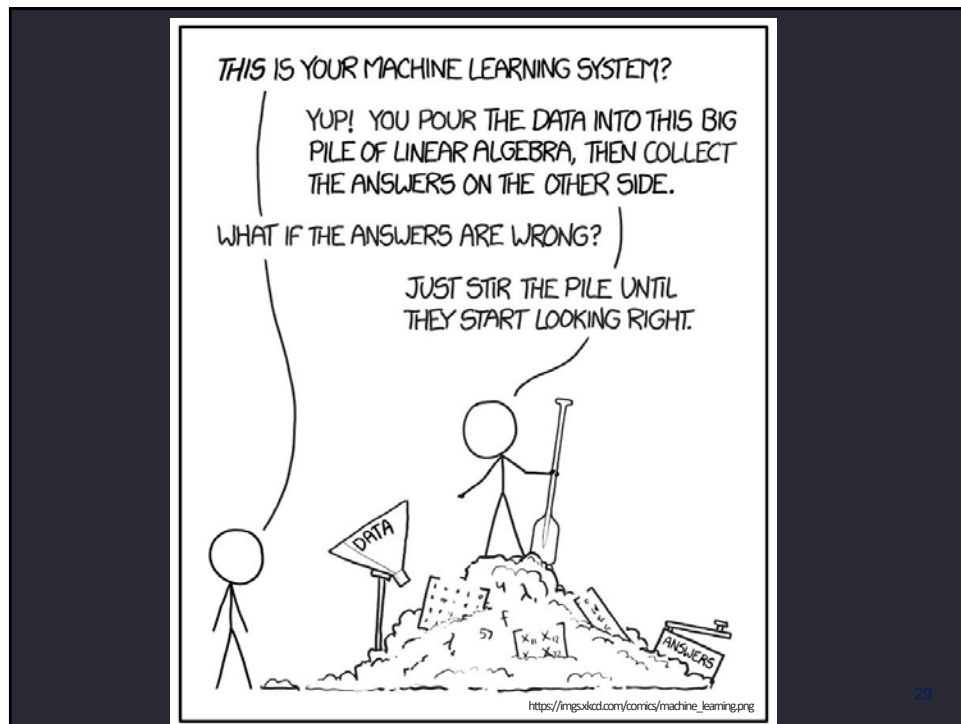




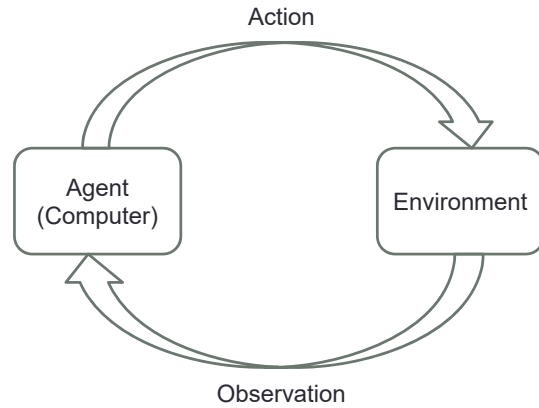
## What is AI?

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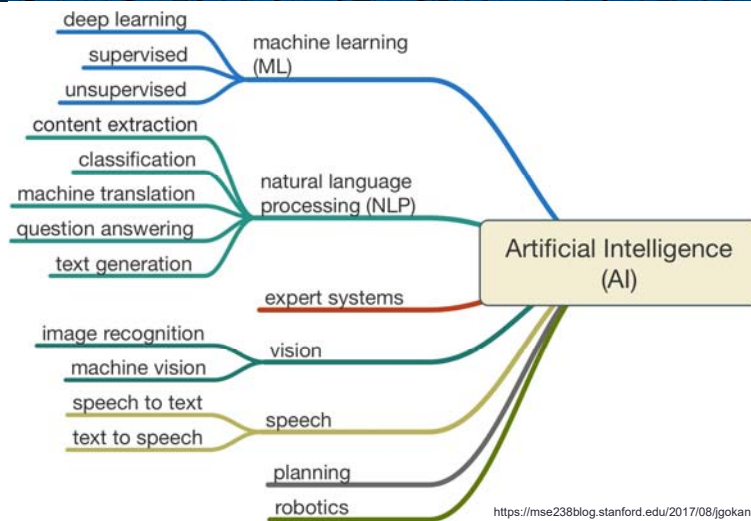


# What is AI



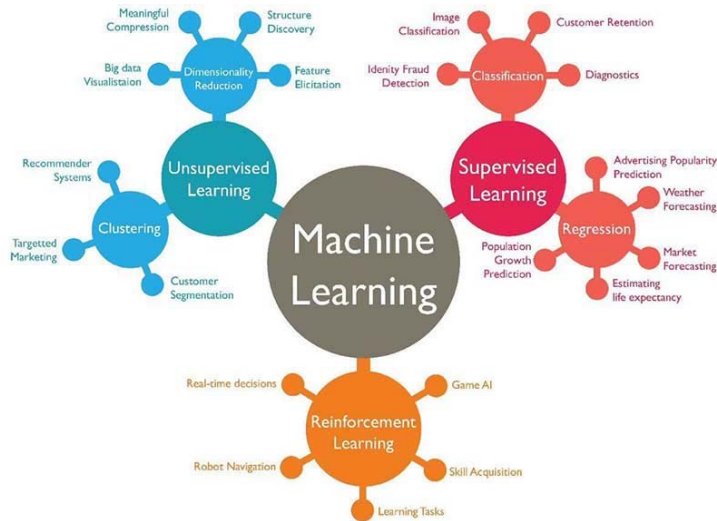
Learn from Experience & Adapt to Environment

# What is AI?



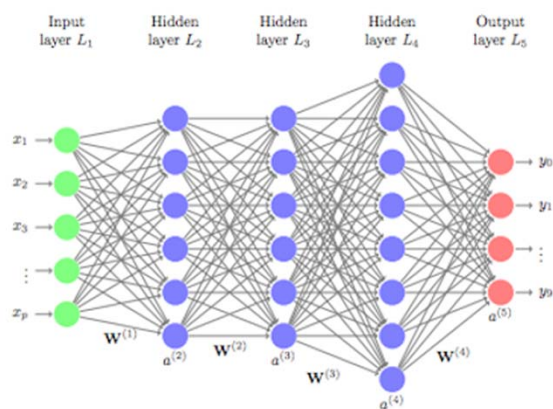
<https://mse238blog.stanford.edu/2017/08/jgokani/the-evolution-of-banking-ai/>

# What is ML?



[www.datasciencecentral.com/profiles/blogs/machine-learning-can-we-please-just-agree-what-this-means/](http://www.datasciencecentral.com/profiles/blogs/machine-learning-can-we-please-just-agree-what-this-means/)

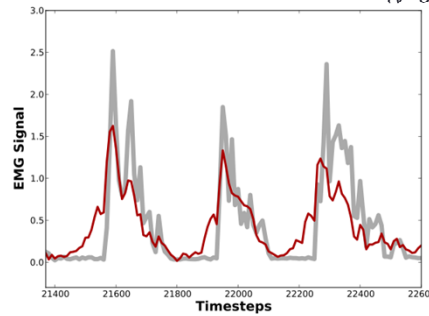
# Deep Learning



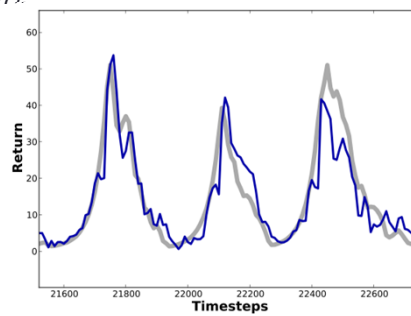
[http://uc-r.github.io/feedforward\\_DNN](http://uc-r.github.io/feedforward_DNN)

# Predicting Biosignals

For EMG signals after ten minutes of online learning  
( $v=0.97$ ).



**ANTICIPATION  
RESULTS**



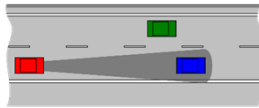
**VALIDATION  
RESULTS**

Pilarski et al., IEEE RAM, 2013





# What is AI?



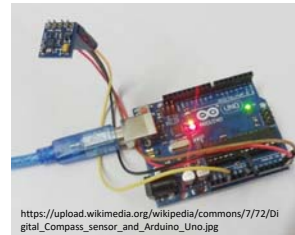
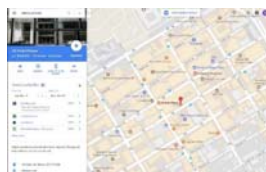
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[https://upload.wikimedia.org/wikipedia/commons/thumb/b/0/0/Multiple\\_Car\\_Accident\\_-\\_Rabindra\\_Sadan\\_Area\\_-\\_Kolkata\\_2012-06-13\\_01320.jpg/1280px-Multiple\\_Car\\_Accident\\_-\\_Rabindra\\_Sadan\\_Area\\_-\\_Kolkata\\_2012-06-13\\_01320.jpg](https://upload.wikimedia.org/wikipedia/commons/thumb/b/0/0/Multiple_Car_Accident_-_Rabindra_Sadan_Area_-_Kolkata_2012-06-13_01320.jpg/1280px-Multiple_Car_Accident_-_Rabindra_Sadan_Area_-_Kolkata_2012-06-13_01320.jpg)



[https://upload.wikimedia.org/wikipedia/commons/f/f2/Cromwell\\_Bridge\\_Road\\_scenic\\_area.jpg](https://upload.wikimedia.org/wikipedia/commons/f/f2/Cromwell_Bridge_Road_scenic_area.jpg)



[https://upload.wikimedia.org/wikipedia/commons/7/72/Digital\\_Compass\\_sensor\\_and\\_Arduino\\_Uno.jpg](https://upload.wikimedia.org/wikipedia/commons/7/72/Digital_Compass_sensor_and_Arduino_Uno.jpg)

# Every Day AI

# NETFLIX

[https://upload.wikimedia.org/wikipedia/commons/0/08/Netflix\\_2015\\_logo.svg](https://upload.wikimedia.org/wikipedia/commons/0/08/Netflix_2015_logo.svg)







<https://en.wikipedia.org/wiki/Siri#/media/File:AppleSilicon2017.png>

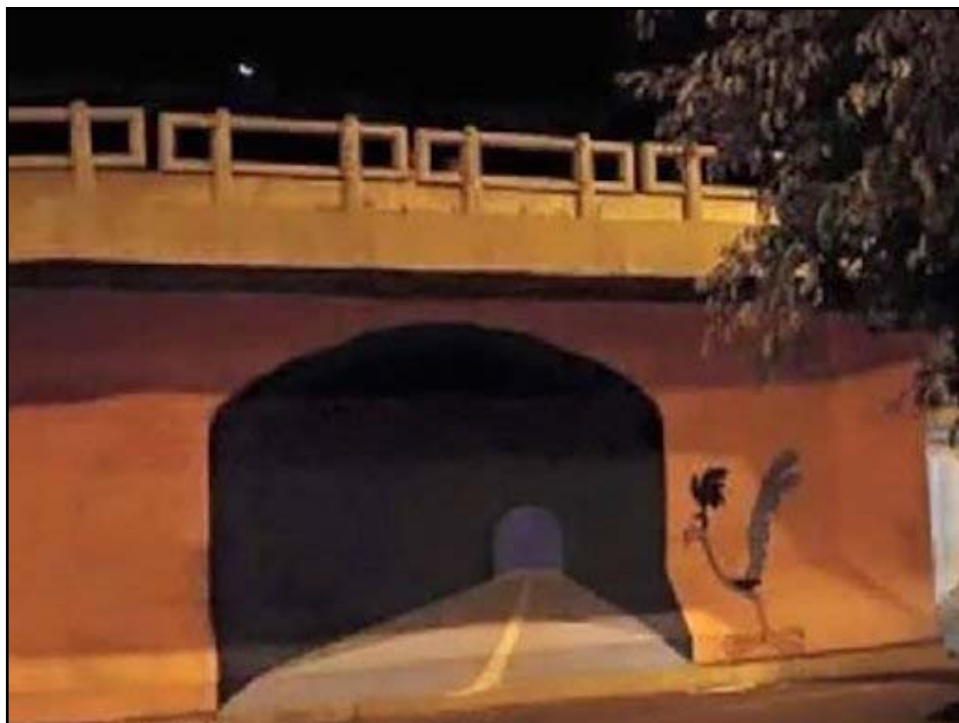
# amazon

[https://upload.wikimedia.org/wikipedia/commons/7/70/Amazon\\_logo\\_plain.svg](https://upload.wikimedia.org/wikipedia/commons/7/70/Amazon_logo_plain.svg)



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Thank you

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 **Goodmans**

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# Data

- **Data is crucial to AI**
- **Cutting edge data models**
  - Data trusts
  - Differential privacy
  - Federated learning

## Legal / Contracting Issues in Artificial Intelligence

Nagendra Krishnamurthy  
Head of Legal & Corporate Secretary  
Tata Consultancy Services Canada Inc.

## TATA Consultancy Services



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A global IT services, consulting and business solutions leader, partnering with the world's leading businesses in their transformational journeys



TATA CONSULTANCY SERVICES

**digitate**

A Tata Consultancy Services Venture

Launched in June 2015

140+ Customers globally

1.5 million+ Applications, Batch, SAP  
Infra components

500+ Employees Globally

25+ Patents globally



July, 2019, Digitate was selected as the winner from among 2,500 companies and startups in the AI industry from all over the world.



August, 2019, ignio and Digitate won four Stevies

"...ignio is a one-of-a-kind software for IT and businesses with great value realization with an ambitious future.

With nominations from 74 nations, this year the Stevie Awards were severely contested and Digitate and ignio shined bright with a compelling narrative..."

- Michael Gallagher, President and Founder, Stevie Awards



Best Enterprise  
Application for Artificial  
Intelligence

**Disclaimer:**

**The views expressed are personal and do not represent that of the employer.**

## Legal Issues (Cont.)

- **Legal Issues in:**
  - Building your own AI system
  - Implementing a commercial off-the shelf AI
- **Intellectual Property Rights**
  - License or SaaS
  - Ownership of Derivative Works
  - Employment Contracts – Assignment of Copyrights from the Employees to the Employer
  - Open Source Software

## Legal Issues (Cont.)

- **Liability**

- “When algorithms mess up, the nearest human gets the blame”
- Is AI just a tool of the operator / human?
- Machine Generated Consequences
- Traceability
- Contractual Liability Issues
- Tortious Liability – Duty to take reasonable care
- Compulsory Insurance Scheme?
- Testing and Certification Process – “Turing Registries”

## Intellectual Property and AI



## Traditional Categories of IP Protection



- Copyright
- Patents
- Trade secrets
- Trademarks

## How Can AI Interface with Conventional Copyright and Patent Law Concepts?



Photo by Franck V. on Unsplash

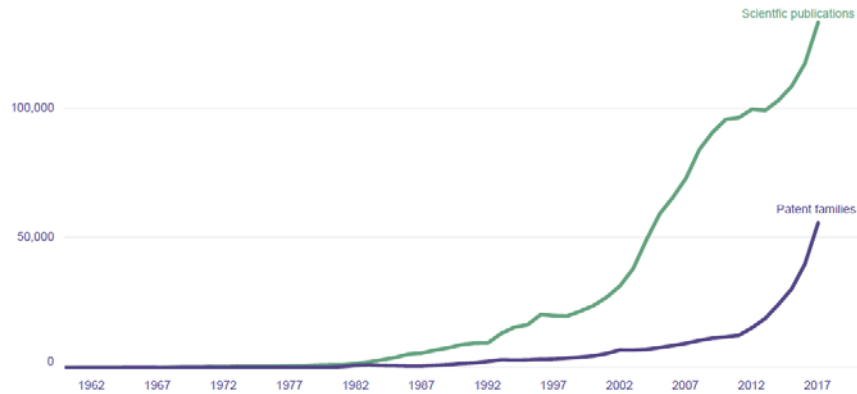
- Identifying an inventor
- Creating a property right in something that is constantly changing
- Meeting patentable subject matter requirements



## Patents

**Figure 3.1. AI patent families and scientific publications by earliest publication year**

*AI patent families grew by an average of 28 percent and scientific publications by 5.6 percent annually between 2012 and 2017*

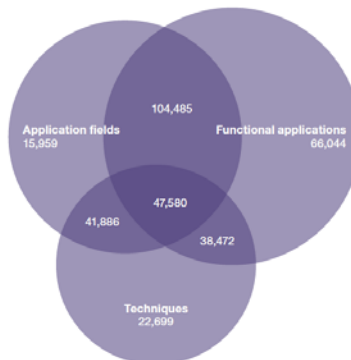


Source: WIPO (2019). WIPO Technology Trends 2019: Artificial Intelligence. Geneva: World Intellectual Property Organization.

## Patents

**Figure 3.3. Patent families related to AI techniques, functional applications, application fields and their overlaps**

*AI technologies are often combined: over 68 percent of AI-related patents fall into more than one category*



Source: WIPO (2019). WIPO Technology Trends 2019: Artificial Intelligence. Geneva: World Intellectual Property Organization.

## IP Issues to Consider – Copyright

- **Are your inputs protected?**
- **Are you infringing by text and data mining?**
- **Does copyright exist in works created by AI?**
- **What is the strength of the protection?**

## IP Issues to Consider – Patents

- **Is the process, software, algorithm or product patentable subject matter?**
- **Who is the inventor?**
- **How do you define the scope of the invention?**
- **Can you detect infringement?**
- **Freedom to operate?**

## IP Issues to Consider – Trade Secrets

- Intellectual “property”
- Can it be reverse engineered?
- Maintaining secrecy through NDAs and other means

## Governance

### Responsible AI Policy Framework

 A GLOBAL POLICY FRAMEWORK

ITechLaw



CAN/CSO-SC 101:2019  
NATIONAL STANDARD OF CANADA

Ethical design and use of automated decision systems  
09.240.02, 09.020, 09.240.01



Standards Council of Canada  
Conseil canadien des normes

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CIO Strategy Council (Canada)

## Governance for AI

- **Purpose of using AI**
- **Data suitability**
- **Monitor and iterate**
  - Extent of human supervision
- **Employee training**
- **Measure negative outcomes (risk analysis)**
  - Including ethics
- **Internal accountability**
- **Compliance regime**
  - Privacy
  - Cybersecurity
  - Data governance
  - Complaints
  - Legal

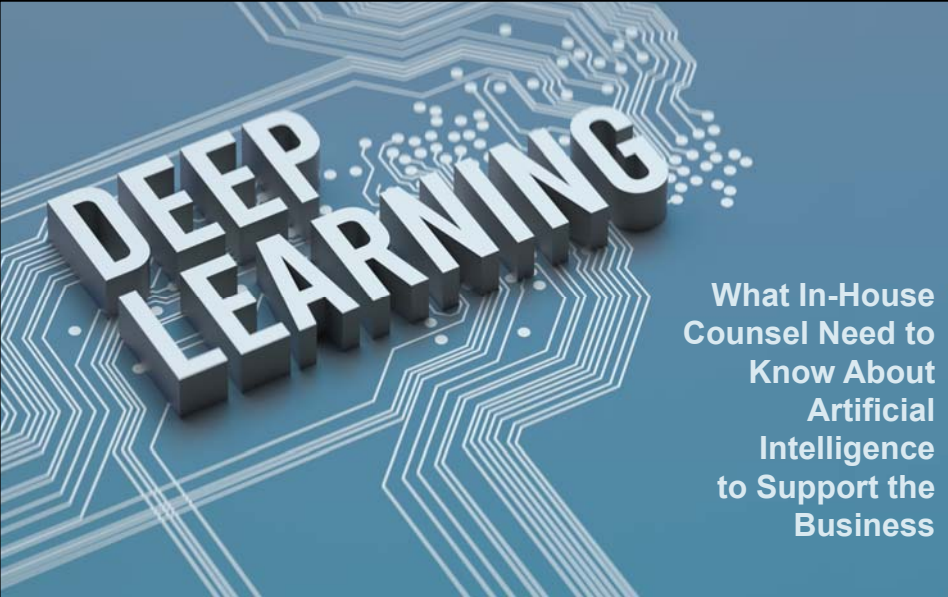
## Contracting





## Contract Provisions to Adjust for AI

- **Description of deliverable**
  - Service levels
- **Data / Personal Data**
- **Intellectual Property Rights**
- **Exclusivity**
- **Liability risk allocation**
- **Reps and Warranties**
- **Indemnities**
- **Algorithmic audits**
- **Dispute resolution**



What In-House  
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