



AI AND HOW IT WILL IMPACT THE TTO

PRESENTED BY:

Jay Kumar, VP Technology Management, TEC



UNIVERSITY OF ALBERTA (UALBERTA) FACTS



- Located in **Edmonton**, Alberta's capital
- **38,311** students from **148** countries
- **15,000** employees
- **18** faculties, **5** campuses
- **\$513** million in sponsored research income (top 5 in Canada)



TEC Edmonton



- Not-for-profit joint venture
- TTO of UAlberta plus region's largest business incubator/accelerator
- ~60 full-time, part-time staff & contractors



Companies, entrepreneurs, and inventors who work with TEC are more successful



TEC Edmonton



Ranked **#3 World Top Business Accelerator** – Linked to University

By
UBI Global in 2018



Alberta Machine Intelligence Institute (AMII)



- **AI research centre** located at the University of Alberta
- One of the **top machine learning research centres** in the world
- Edmonton one of three centres identified in \$125 million Pan-Canadian AI Strategy of Federal Gov't (Montreal, Toronto-Waterloo)
- **DeepMind & RBC Research** - Major players in AI setting up locations in Edmonton



evolving ideas ■ ● ●

At a glance: Alumni recruitment

Industry



And many others...

Academia



At a glance: Researchers



Michael
Bowling



Randy
Goebel



Russ
Greiner



Robert
Holte



Patrick m.
Pilarski



Dale
Schuurmans



Or
Sheffet



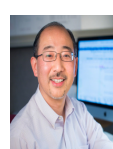
Richard s.
Sutton



Csaba
Szepesvári



Martha
White



Yutaka
Yasui



Osmar
Zaiane



IP HOLDING COMPANY 10PI

- Owned by 10 Principal Investigators and Business Director of AMII
- Master Option to license IP developed at Institute
- Pre-set terms and conditions for licensing
- Pre-agreed ready to sign documents



OPTION SCOPE LIMITATIONS

- Applies to IP created through funding from Institute: researchers may have independent research programs independent of Institute
- Researchers sign an Acknowledgement of Terms prior to participating in Institute-funded research
- Option must be exercised within 9 months of disclosure



LICENSE TERMS

- **Tiered Royalty on Gross Sales:** flow-through to sub-licensee sales
- **No upfront payment** or milestone payment
- Licensee pays patent costs during option and license term
- **Sub licensing:**
 - % of any additional royalty plus % of other considerations
 - flexibility to do non-royalty sub-licensing: upfronts/milestones/equity
 - flexibility on choice of sub-licensee: non arm's length needs approval



PATENTS VS. COPYRIGHT

Patents:

- Institution approval required for:
 - Non-royalty based sub-licensing
 - Sub-licensing milestones

Copyright:

No approval required



OTHER CONSIDERATIONS

- **Addition/change of PIs/Inventors:** General Partnership-Limited Partnership model
- **Non-arm's length sub-licensing** (Spin-off):
 - COI managed through both Institution and Institute
- **Length of time** to develop an Umbrella model
- **Importance of having a champion:** trust relationship with former TEC EIR representing the Institute
- Appropriate consultation with stakeholders



10PI MODEL IN PRACTICE

- 4 Commercialization Projects on the go:
 - 1 Spin-off created
 - 2nd Spin-off in the works
 - 2 in investigation stage



IP HOLDING COMPANY 10PI

Pros:

- Avoids case-by-case discussion with PIs
- Gives PIs greater control over their IP
- Time to license: spin-off deal signed within a week

Cons:

- Institution has no involvement in licensing decisions
- Pre-set terms may not work in certain situations



WHAT HAVE WE LEARNED?

- **Faster time to license:** need for Umbrella/Express models
- **Non-traditional IP** (copyright etc.) more prevalent
- **Flexible deal structure** on non-traditional IP: one-time/milestone based payments common
- **Know-how** (and therefore individuals) becoming more important than patents

A large green rectangular area with a pattern of white circles of various sizes, some overlapping, creating a molecular or network-like structure.

THANK YOU!

The TEC Edmonton logo, featuring a stylized 'e' with a blue arrow pointing right, followed by 'eC' in green, and 'TEC EDMONTON' in blue below.

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www.tecedmonton.com

The Facebook logo icon, a white 'f' inside a blue square.

TEC Edmonton

The Twitter logo icon, a white bird inside a blue square.

@TECEdmonton

The 'evolving ideas' logo, consisting of the text 'evolving ideas' in a small font, followed by three colored squares: blue, green, and yellow.

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Life sciences and healthcare

Artificial Intelligence and Tech Transfer

Norton Rose Fulbright LLP
Maya Medeiros, Partner

AUTM Webinar
March 14, 2018

Overview

- What is the impact of AI?
- What are key considerations for commercializing AI innovation?



AI is a field of computer science that includes machine learning, natural language processing, speech processing, expert systems, robotics, and machine vision.



Energy sector

PRESS RELEASES

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Landis+Gyr+
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Artificial intelligence to control the power grid in Riedholz

Together with the Canton of Solothurn, the four companies Adaptricity, AEK, Alpiq, and Landis+Gyr are investigating how the energy flow in a power distribution grid can be optimised and controlled through artificial intelligence in the town of Riedholz. The findings will minimise investments in costly grid expansion and decrease electricity costs. The SoloGrid project is being promoted by the Swiss Federal Office of Energy as a lighthouse project, and supported financially by the Canton of Solothurn.



S&P GLOBAL RESPONSE

Artificial Intelligence seen as a key technology to enable better balancing of UK's energy market

12 Dec January 2017 • Awards, News • AI-Based Algorithms Platform, artificial intelligence, cloud service, demand response, energy, smart grid, smart grids, machine learning, National Grid, portfolio of storage assets

HUFFPOST

THE SUNDAY TIMES

Oilprice.com, Contributor
The Number One Source For Oil And Energy News

Artificial Intelligence Is Crucial For The Energy Industry

05/16/2017 10:54 am ET

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Recycling Robots - A Look Inside the World's First AI Waste Management Centre

By Anthony Cuthbertson
June 13, 2014 12:54 BST



Siemens has developed the first ever recycling process controlled by artificially intelligent robots.

Home > Future of Mining > Innovation > Machine learning enters mines

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Real insight into the catalysts and trends changing mining's future

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Machine learning enters mines

Penny Stewart discusses the rise in the use of machine-learning algorithms on mine sites

Penny Stewart | 22 Dec 2016 | 12:18 | Opinion |

MATT SIMON SCIENCE 05.25.16 01:26 PM

THE FUTURE OF HUMANITY'S FOOD SUPPLY IS IN THE HANDS OF AI

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Life sciences and healthcare sector

Google is going to develop a surgeon robot with Johnson & Johnson

Posted on Monday, March 30th, 2015 by Alan Caplan



of this market.

A release of the US giant Johnson & Johnson comes to reveal: specializing in medical accessories, subsidiary Ethicon will work with Google in the field of robotics. The two partners will work on the development of a new Robotics platform. A platform that will give birth to robots dedicated to surgery. An electric shock on a medical Robotics market down growth. Despite optimistic forecasts from analysts, the market stagnates, notably because of the prohibitive price of these robots. The arrival of Google could well revive the growth



Helping clinicians get patients from test to treatment, faster

We set up DeepMind Health to put the UK's most advanced technology at the service of patients, nurses and doctors.

Business Wire
A Berkshire Hathaway Company

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Your.MD, World's First AI Personal Health Assistant now Available on Global Messaging Services

Your.MD increases accessibility through integration with Slack and Telegram

February 04, 2016 11:00 AM Eastern Standard Time

LONDON--(BUSINESS WIRE)--Your.MD, the only personal health assistant that harnesses Artificial Intelligence (AI), is now available to users on global messenger platforms for the first time.

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Technology and innovation sector

The Telegraph

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Transport sector

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AI Captain!

Maritime Robotics to Revolutionise Shipping (And Piracy)

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BI Intelligence
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Commercialization of AI innovation

- IP protection for AI innovation
- Collaboration frameworks
- Licensing considerations
- Ethical and legal considerations for AI

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IP Protection for AI Innovations

- IP protection for AI innovation impacts valuation, commercialization and enforcement
- Example AI innovation:
 - Classifiers or rules for applications/use cases
 - Network topology
 - Training data sets
 - Hardware and software components
 - Mix of custom and third party components (e.g. open source)

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IP Protection for AI Innovations

- **Patents:** technical processes, machines, improvements
- **Designs:** hardware form factors, UI elements
- **Trademarks:** mark, logo
- **Copyright:** code, compilations of data, APIs, UI elements, graphics
- **Trade secrets and confidential information:** backend code, know-how and “secret sauce”

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Patents for AI Innovation

- Protect investment, freedom to operate
- USPTO designated class 706 for AI
- Preliminary search results:

▲ Assignee	
IBM	(1077)
MICROSOFT TECHNOLOGY LICENSING	(600)
GOOGLE	(225)
NEC	(165)
SONY	(160)
FUJITSU	(150)
SIEMENS	(148)
QUALCOMM	(136)
HITACHI	(135)
ORACLE	(127)
More...	

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Patent Eligibility

- No clear line for patent eligibility of AI innovation
- Highlight technical problems and solutions
- Written description should refer to structural details, special programming
- Computer-readable medium claim
 - *Computer-readable medium storing instructions that when executed by a processor cause it to perform X*

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Trade-secrets and confidential information

- Algorithms and processes (whether or not patentable)
- AI data such as neural network topology, training data, input data, weights and parameters
- Requirements – must be kept secret, any formula, pattern, device or compilation of information used in business and which gives the owner an opportunity to gain an advantage over competitors
 - Lack of specific legislation in Canada v. the US
- People management, compliance and due diligence

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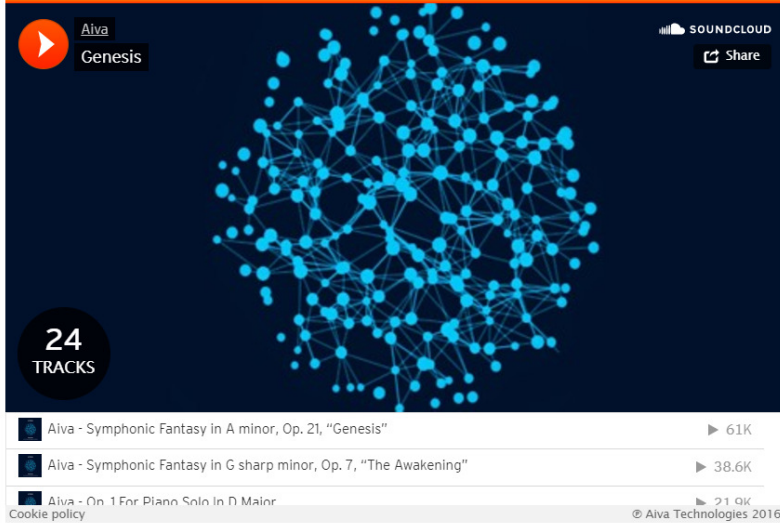
New IP questions raised by AI innovation

- Machine generated IP
- Copyright
 - Who is the author?
 - Is the work an original work?
 - Is the work protectable by copyright?
 - Does copyright protection extend to machines?
 - Who is the owner?
- Patent
 - Who is the inventor?
 - What is the invention?
 - Is the invention patentable?
- Machine infringement of IP

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AI created music



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Collaboration Frameworks

- AI innovation often involves collaboration
- Different collaboration models emerging:
 - Technology collectives
 - Data collectives
 - IP collectives

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Licensing considerations

- Transfer rights or permissions to IP assets
- Manage risk and expectations
- AI is different than “typical software”
 - Autonomous decision making
 - AI algorithms and classifiers adapt over time
 - Large or unique data sets may be required
 - Subject matter experts provide feedback and training data

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Licensing considerations

- AI agreements from the perspective of:
 - AI providers
 - Data providers
- Scope
- Ownership of data, AI tool, improvements
- Compensation models for commercializing improved AI tool/results
 - Revenue share
 - License
 - Sublicense

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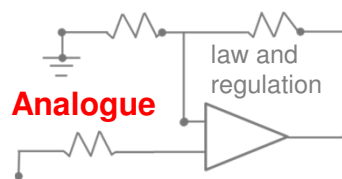
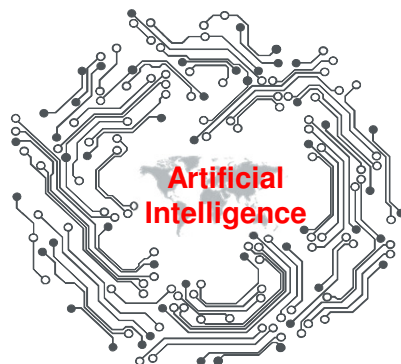
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Ethical and Legal considerations impact IP

- AI needs to meet minimum ethical/legal standards for commercial adoption
- Existing legal framework already applies to AI innovation
 - Liability, Privacy, Regulatory, Consumer protection
- Ethical AI requires:
 - Human rights and values
 - Transparency
 - Accountability
- These ethical and legal standards can impact IP protection

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We are entering into an AI digital era governed by analogue law and regulation

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Any questions?
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