

A photograph of the Montreal skyline under a blue sky with white clouds. A large green rectangular overlay is positioned in the center of the slide, containing the text.

MtIIA inc.

www.MONTREAL.AI

PRESENTATION



"The world is moving from the smartphone age into an "AI-first" era."

— Google CEO Sundar Pichai



Montreal: Supercluster of AI

Montreal is a leading city in deep learning research with close to 100 researchers exploring deep learning at the MILA of University of Montreal and around 50 researchers in deep reinforcement learning at the RLLab of McGill University.

Still, all that AI research doesn't presently flow into the real world:

"On a déjà parlé à des entreprises qui ont des problèmes très intéressants à régler, mais personne pour les aider."

— Yoshua Bengio, Université de Montréal

MtlIA inc. is created to leverage research (applied AI) and orchestrate tangible benefits for **entrepreneurs**, **fortune 500**, **governments**, **institutions** and **startups** on an unprecedented scale.



“The business plans of the next 10,000 startups are easy to forecast: Take X and add AI.”

KEVIN KELLY
WIRED MAGAZINE

“Artificial intelligence is one of the most transformational technologies impacting business today, and Canada must remain at the forefront of exploring its commercial and scientific opportunities.”

DAVE MCKAY

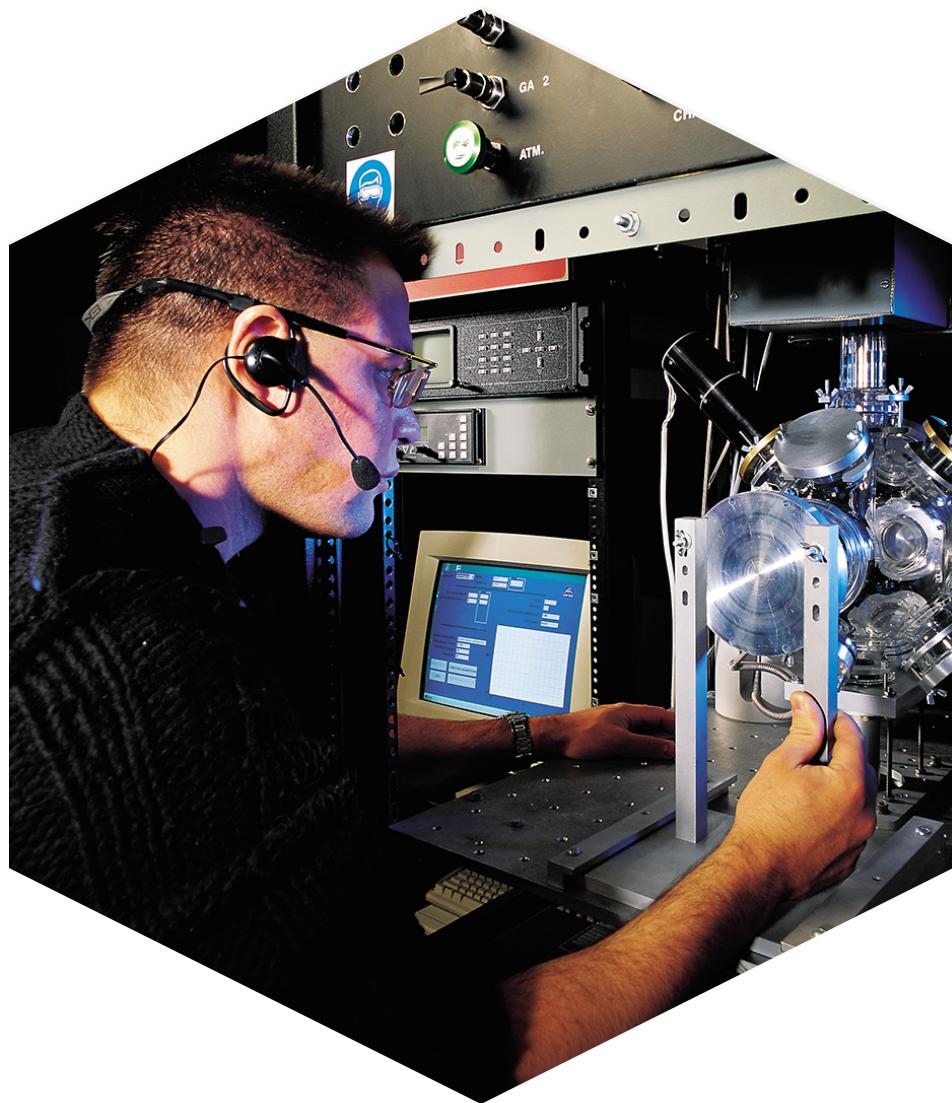
PRESIDENT AND CEO OF RBC

$$\begin{aligned}
 & \text{Background filled with mathematical formulas, equations, and diagrams related to probability, statistics, and machine learning.} \\
 & \text{Key visible elements include:} \\
 & \quad P(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}, \quad \Gamma(p) = \int_0^\infty t^{p-1} e^{-t} dt, \\
 & \quad \beta(p, q) = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}, \quad \text{Beta function: } \beta(p, q) = \int_0^1 t^{p-1}(1-t)^{q-1} dt, \\
 & \quad \text{Binomial distribution: } P(x) = \binom{n}{x} p^x (1-p)^{n-x}, \\
 & \quad \text{Poisson distribution: } P(x) = \frac{\lambda^x e^{-\lambda}}{x!}, \\
 & \quad \text{Normal distribution: } P(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}, \\
 & \quad \text{Expectation: } E[X] = \sum x_i P(x_i), \quad \text{Variance: } \text{Var}[X] = E[X^2] - E[X]^2, \\
 & \quad \text{Covariance: } \text{Cov}[X, Y] = E[(X - \bar{X})(Y - \bar{Y})], \quad \text{Correlation coefficient: } \rho_{XY} = \frac{\text{Cov}[X, Y]}{\sqrt{\text{Var}[X]\text{Var}[Y]}}, \\
 & \quad \text{Conditional probability: } P(A|B) = \frac{P(A \cap B)}{P(B)}, \quad \text{Bayes' theorem: } P(A|B) = \frac{P(B|A)P(A)}{P(B|A)P(A) + P(B|\bar{A})P(\bar{A})}, \\
 & \quad \text{Maximum Likelihood Estimation: } \hat{\theta} = \arg \max_{\theta} \sum x_i P(x_i | \theta), \\
 & \quad \text{Logistic regression: } P(y=1|x) = \frac{1}{1+e^{-(\beta_0 + \beta_1 x)}}, \\
 & \quad \text{Support Vector Machine: } \text{Margin: } \gamma = \min_i y_i - \max_j y_j, \quad \text{Decision Function: } f(x) = \text{sign}(\beta_0 + \beta_1 x), \\
 & \quad \text{Neural Network: } \text{Forward pass: } z_j = \sum_k w_{kj} x_k + b_j, \quad \text{Activation: } a_j = \sigma(z_j), \\
 & \quad \text{Backpropagation: } \delta_j = \frac{\partial L}{\partial z_j} = \frac{\partial L}{\partial a_j} \frac{\partial a_j}{\partial z_j}, \quad \text{Update rule: } w_{jk} \leftarrow w_{jk} + \eta \delta_j a_k, \\
 & \quad \text{Convolutional Neural Network: } \text{Input: } I, \quad \text{Kernel: } K, \quad \text{Stride: } S, \quad \text{Output: } O, \\
 & \quad \text{Loss Function: } \text{Cross-Entropy Loss: } L = -\sum y_i \log p_i, \quad \text{MSE Loss: } L = \frac{1}{n} \sum (y_i - \hat{y}_i)^2, \\
 & \quad \text{Optimization: } \text{Gradient Descent: } \theta \leftarrow \theta - \eta \nabla \mathcal{L}(\theta), \quad \text{Adam: } \theta \leftarrow \theta - \eta \frac{\hat{g}}{\sqrt{\hat{s}}}, \\
 & \quad \text{Regularization: } \text{L2 Regularization: } \lambda \sum \theta_i^2, \quad \text{Dropout: } \text{Probability: } p, \quad \text{Mask: } \mathbf{M}, \quad \text{Output: } \mathbf{O} = \mathbf{M} \cdot \mathbf{I} / p, \\
 & \quad \text{Sampling: } \text{Reparameterization: } z = \mu + \sigma \mathbf{z}, \quad \text{Annealed Importance Sampling: } \text{Importance: } \pi_\theta(x), \quad \text{Proposal: } \pi_\phi(x), \\
 & \quad \text{Monte Carlo Integration: } \mathbb{E}_\pi[f(x)] = \frac{1}{N} \sum_i f(x_i), \quad \text{Markov Chain Monte Carlo: } \pi_\theta(x_t | x_{0:t-1}), \\
 & \quad \text{Generative Models: } \text{Latent Space: } z \sim \pi_z, \quad \text{Likelihood: } \pi_\theta(x | z), \quad \text{Posterior: } \pi_\theta(z | x), \\
 & \quad \text{VAE: } \text{Encoder: } z = \pi_\theta(z | x), \quad \text{Decoder: } x = \pi_\phi(x | z), \\
 & \quad \text{GAN: } \text{Generator: } x = G(z), \quad \text{Discriminator: } D(x), \quad \text{Loss: } \mathbb{E}_{x \sim p_\theta} [\log D(x)] + \mathbb{E}_{z \sim p_z} [\log (1 - D(G(z)))].
 \end{aligned}$$



Québec is a world leader in electricity.

"AI is the new electricity!" — Andrew Ng



VINCENT BOUCHER

Welcome Message

A Renewal of the High Renaissance Ideals with Precision Engineering

If you are a C-suite newcomer to the AI, the first question you may have is: **What AI can do now and how it relates to my strategies?** AI is a transformative technology. Our present superhuman agents can see, learn from experience, simulate our world and orchestrate meta-solutions.

"If you have a large big dataset and you train a very big neural network, then success is guaranteed!"

— Ilya Sutskever, Google Brain



www.Montreal.AI

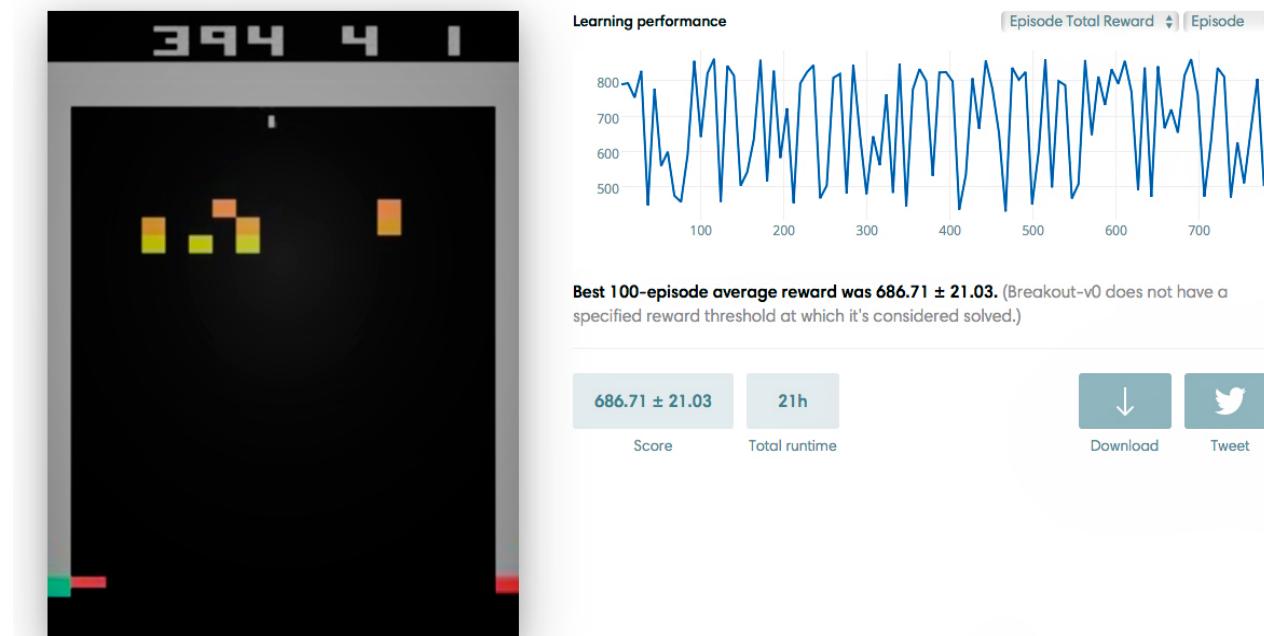
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Introduction: Reinforcement Learning (RL)

"RL Algorithms Have Started to Achieve Good Results in Many Difficult Environments" – OpenAI

5 KEY EVENTS

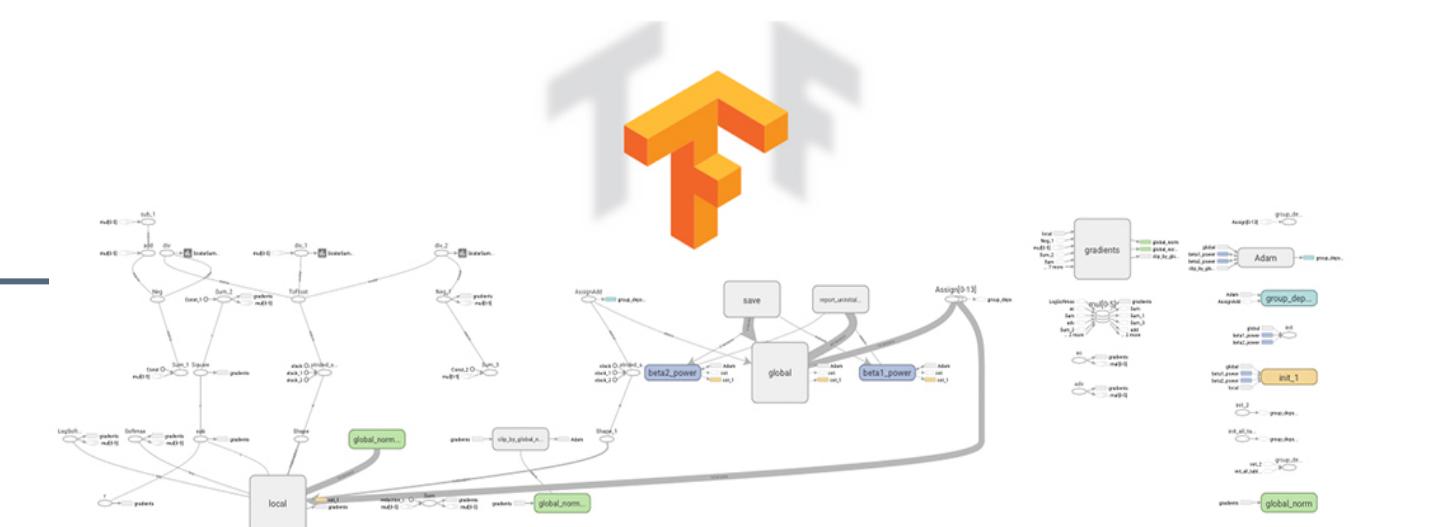
JANUARY 26, 2014



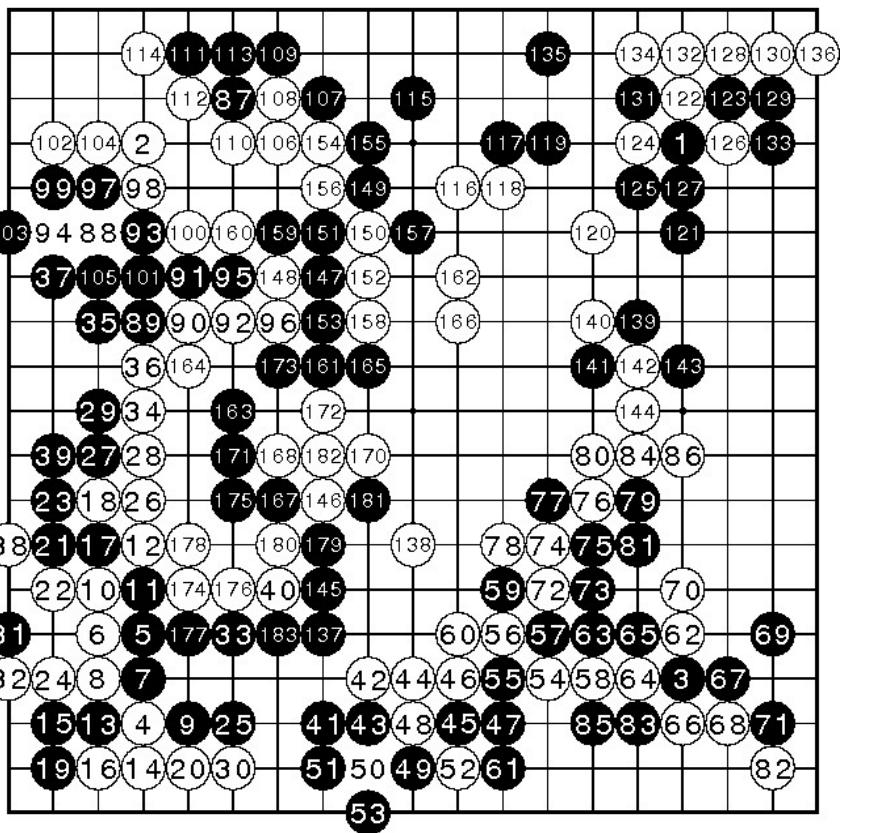
Google releases **TensorFlow**: An *open-source* software library for **Machine Intelligence**.

Google acquires AI startup DeepMind for **£400 million**. The company has created a neural network that learns how to play video games in a fashion similar to that of humans.

NOVEMBER 9, 2015

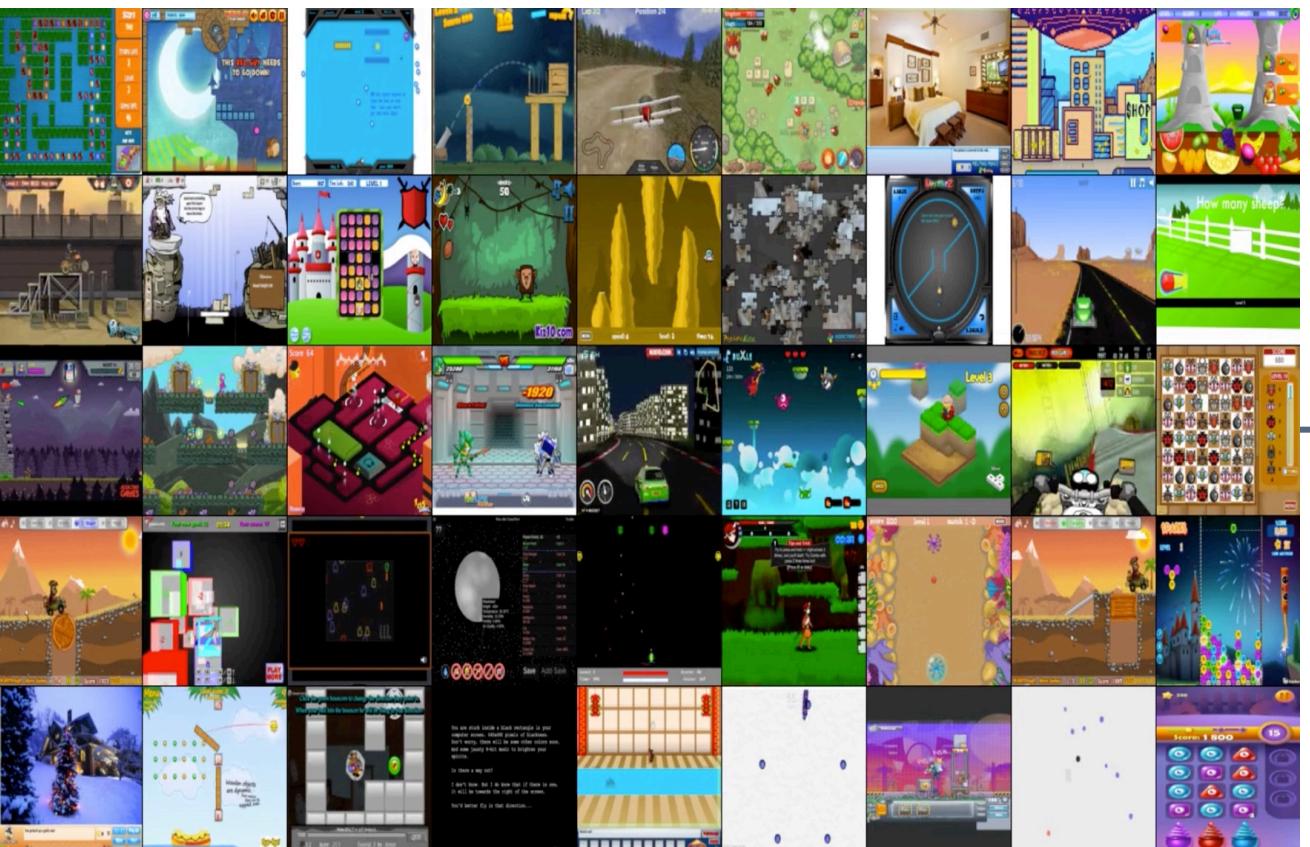


MARCH 15, 2016



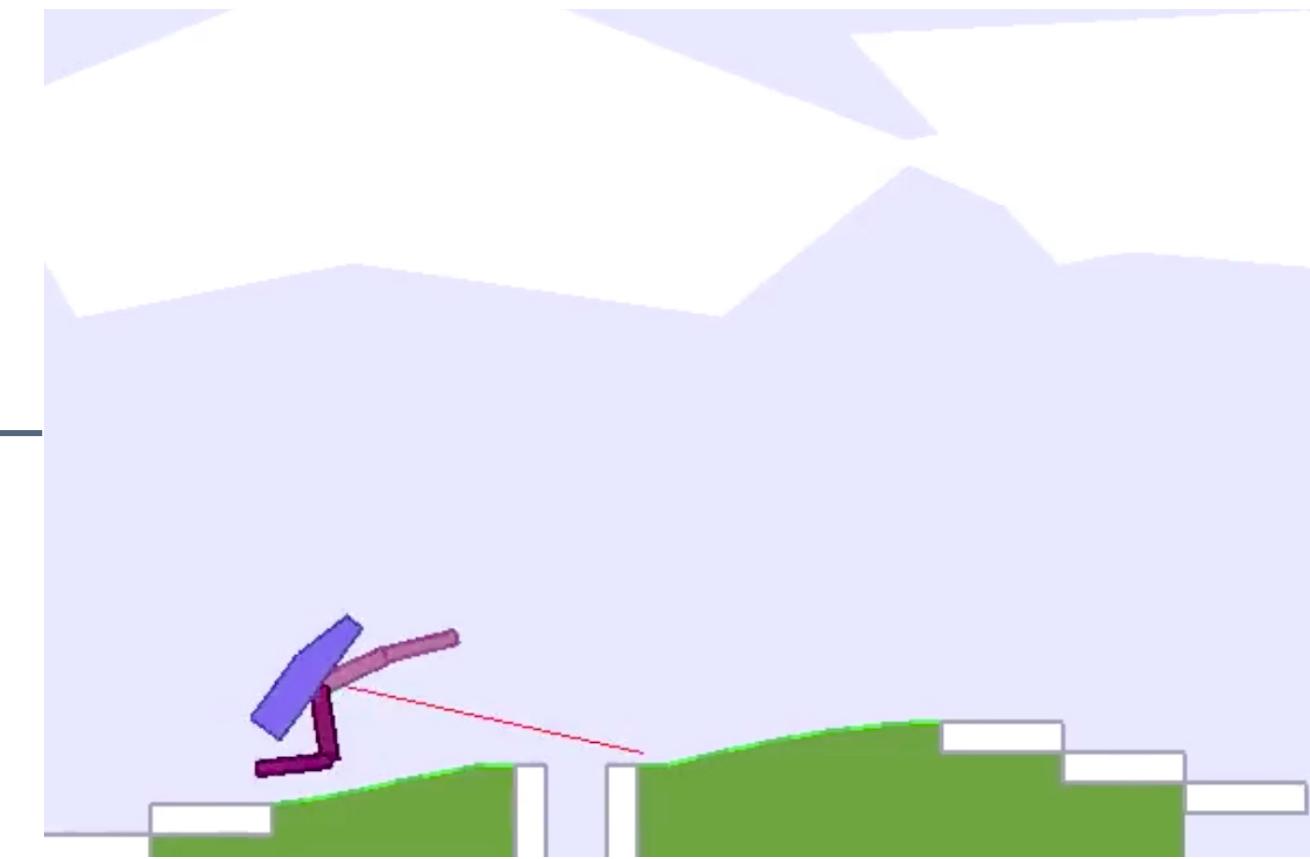
OpenAI Gym, a toolkit for comparing **reinforcement learning (RL)** algorithms.

DECEMBER 05, 2016



Google's AlphaGo makes **AI history** with Go victory against Lee Sedol in a five-game match.

APRIL 27, 2016



OpenAI releases **Universe**, a software platform for measuring and training an **AI's general intelligence** across the world's supply of games, websites and other applications.

Trends #Hashtags

Applied AI Brings a Unique Perspective

#MtlAI

#MtIIA

#MontrealAI

#QuebecAI

#DeepLearning

#ReinforcementLearning

#Mtl

#AI

#CAIO

#SuperIntelligence

#MachineIntelligence

#ArtificialIntelligence

#MachineLearning

#BlockChain

#Quebec

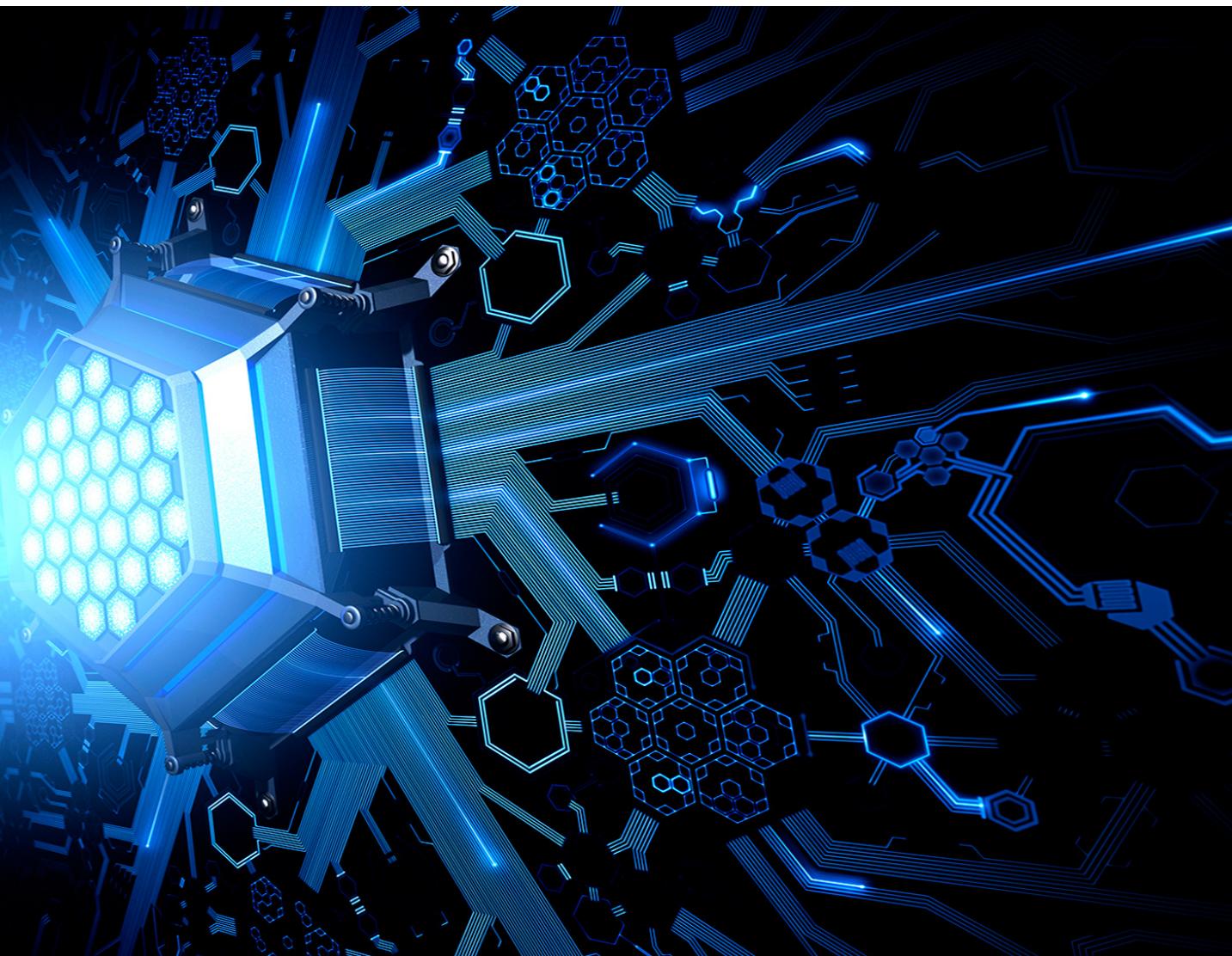
#BigData

#Montreal

#FinTech

Company Establishment

A Québec Business Corporation



MtIIA inc.
Founded in 2017

#MtIIA | #MtIAI



“\$50 trillion of value to be created by AI and Robotics through 2025” – McKinsey & Company

We are at the verge of a global technological shift. Under **MtIIA inc.**'s umbrella, multiple operating and distribution companies are being structured to push boundaries, launch real products and orchestrate tangible benefits. Drawing on extensive experience, our team is starting an effort reaching out to **Captains of Industry, Iconic Tech Entrepreneurs, Philanthropists, Scholars and Successful Financiers** to join us at boardroom level in this task of historic proportions.

About Us

Supercluster of [AI in Montreal](#) SOLVING Toughest Challenges

ABOUT US

MtIIA inc.

Supercluster of AI in Montreal SOLVING Toughest
Challenges with Deep Meta-Learning and
Orchestrating Tangible Benefits for Everybody.

WWW.MONTREAL.AI



Goals And Objectives

Empowering Entrepreneurs, Fortune 500 and Governments with Applied AI



SOLVING Toughest Challenges with Deep Learning to **EMPOWER** Entrepreneurs, Fortune 500, *Governments, Institutions* and *Startups* on an Unprecedented Scale.

"A lot of technologists, particularly in deep learning, are very skilled at constructing powerful algorithms but don't always know how to use them to solve real world problems."

— Chris Nicholson, Skymind



Artificial General Intelligence (AGI)

What Would You Do if You Couldn't Fail ?

A Renewal of the High Renaissance Ideals with Precision Engineering The past few years deep learning started achieving state-of-the-art results. MtlIA inc. implements world-class AI agents to design (Deep Meta-Learning) breakthrough deep learning algorithms with an understanding of our Universe.

“Give me a lever long enough and a fulcrum on which to place it, and I shall move the world.” – Archimedes

Machine Superintelligence

"Any Sufficiently Advanced Technology is Indistinguishable from Magic." — Arthur C. Clarke

Applied AI

Leveraging Research

Bringing contributions by scholars recognized as the foremost authorities, our approach of combining **Reinforcement Learning**, **Generative Models**, and **Deep Meta-Learning** is creating new markets, pushing boundaries and reinventing companies in an "**AI-first**" era.



01

Reinforcement Learning

A subfield of machine learning concerned with decision making and control.

02

Generative Models

A branch of unsupervised learning techniques in machine learning.

03

Deep Meta-Learning

Implementing AI agents to design breakthrough deep learning algorithms.

Machine Superintelligence

An Agent Navigating Websites **on the Internet**

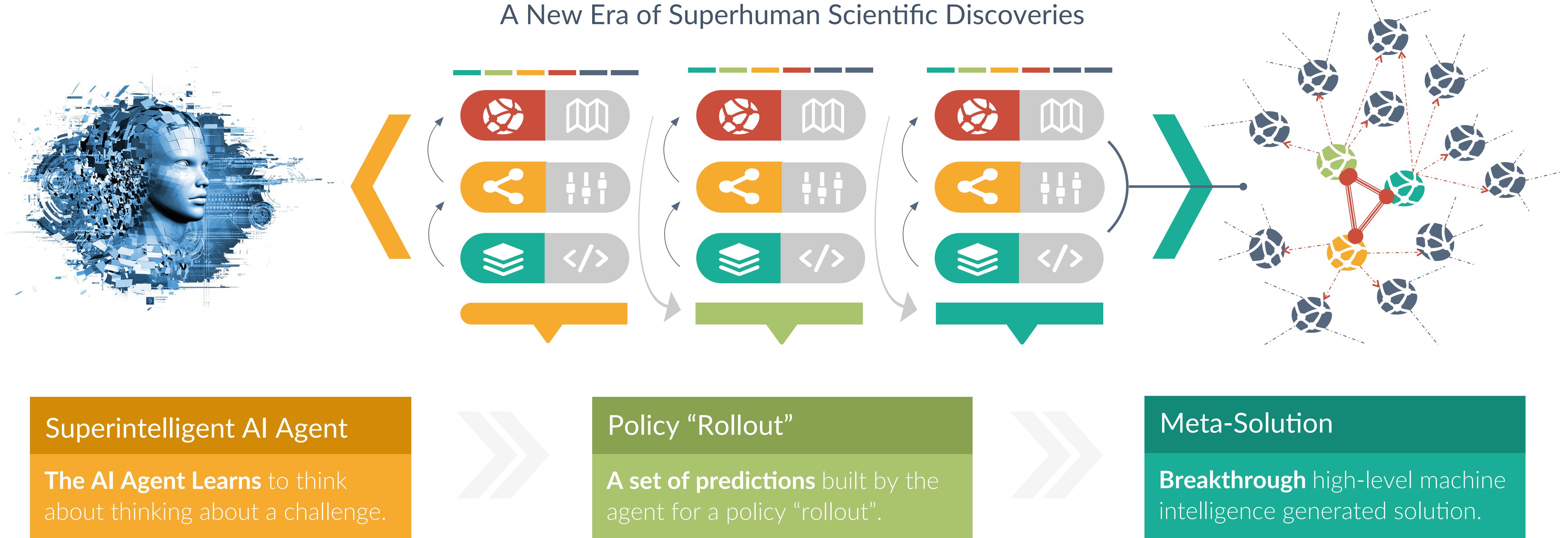
For the user @sit, click on the "Report" button.	Type the text below into the text field and press Submit.	For the user @lyda, click on the "Report" button.	Click the button.	Guess the number, between 0-9 and press Submit. Use the feedback below to adjust your answer.	Enter the value of Country into the text field and press Submit.
Select Amalita>Maureene	How many small aqua triangles are there? 7 0 2 1 8	Draw the number "0" in the checkboxes using the example on the right and press Submit when finished.	Enter 04/01/2016 as the date and hit submit.	Enter the value that corresponds with each label into the form and submit when done.	Select the following color with the color picker and hit Submit.
Enter 11:58 PM as the time and press submit.	Find the 4th word in the paragraph, type that into the textbox and press "Submit".	Select Keslie	Find the 4th word in the paragraph, type that into the textbox and press "Submit".	Select -81 with the slider and hit Submit.	Copy the text from the 3rd text area below and paste it into the text input.

Mini World of Bits | OpenAI Universe

A benchmark for reinforcement learning agents who interact with websites.

Learning Meta-Solutions

Leveraging Superintelligence to Solve Humanity's Toughest Challenges on an Unprecedented Scale

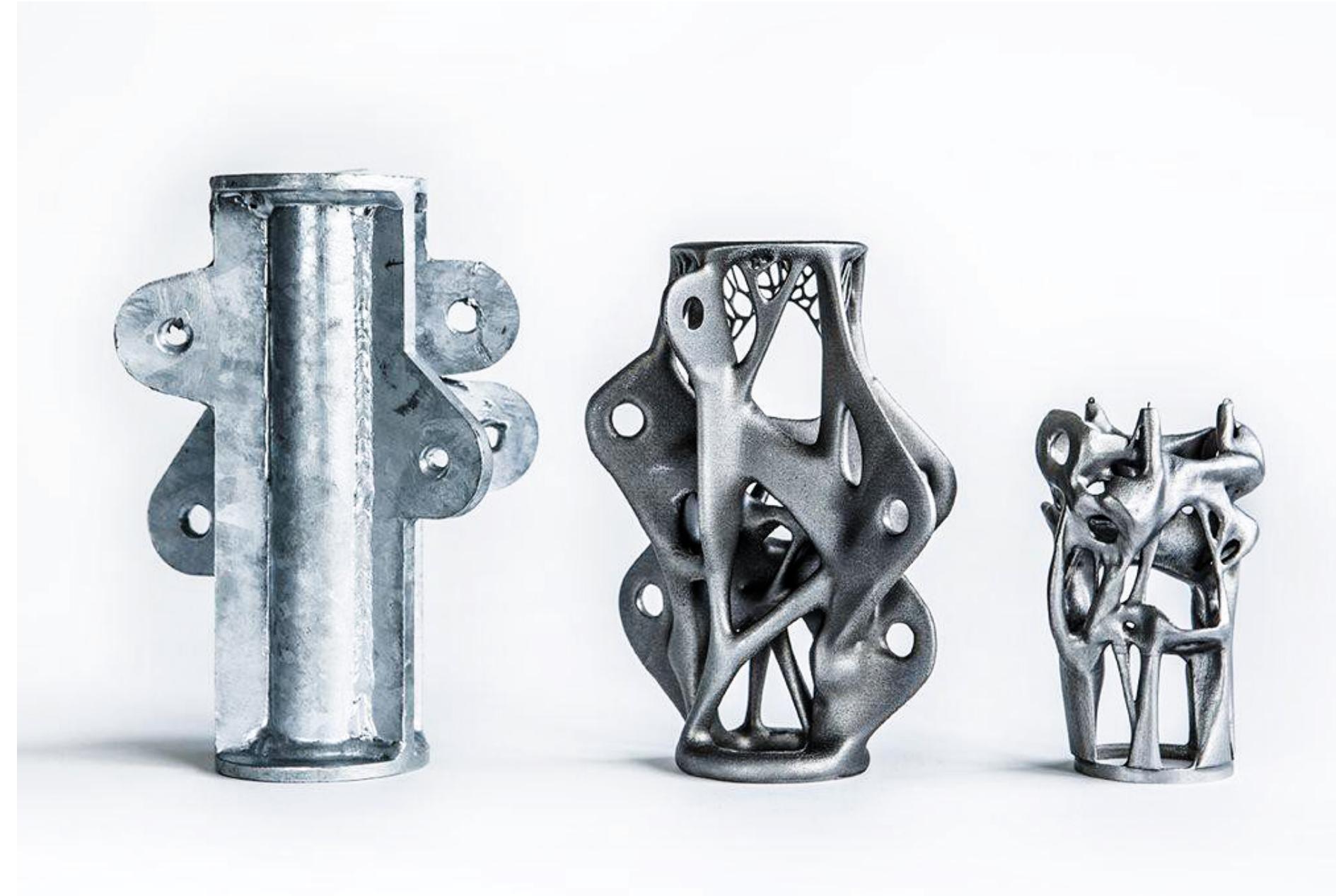


SCIENCE IS TO REACH ITS FULL POTENTIAL

Machine Superintelligence

Deep Learning Generative Design and Models

"These designs are actually the optimal solutions to multiple competing design requirements." — Carlos E. Perez

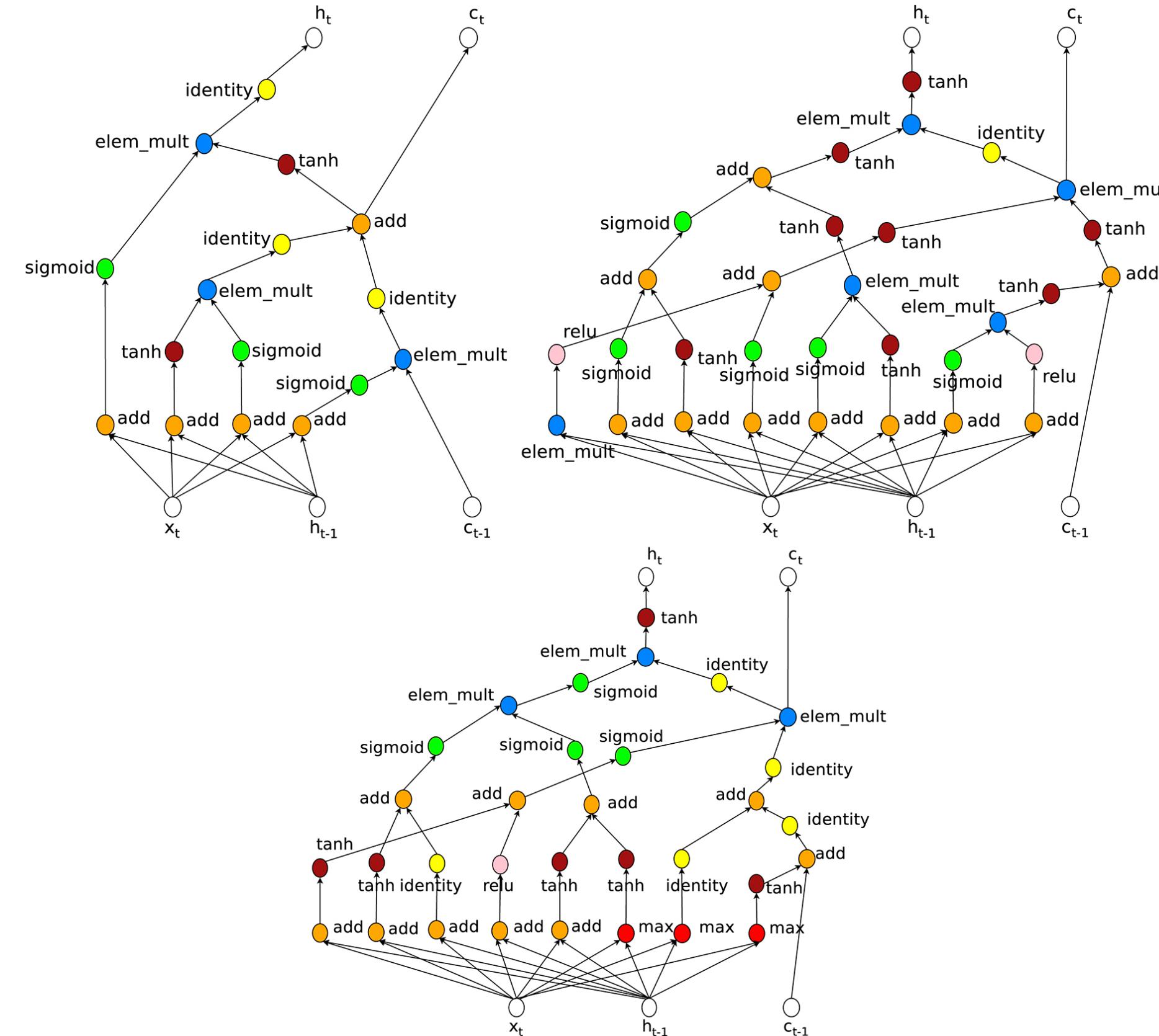


Deep Learning to Generate Designs and Models

"... the height is approximately half that of one designed for traditional production methods, while the direct weight reduction per node is 75%."
— Salomé Galjaard, Team Leader at Arup

Machine Superintelligence

Neural Architecture Search with Reinforcement Learning



RNNs Generating RNN Architectures

A comparison of the original LSTM cell vs. two new good generated. Top left: LSTM cell.

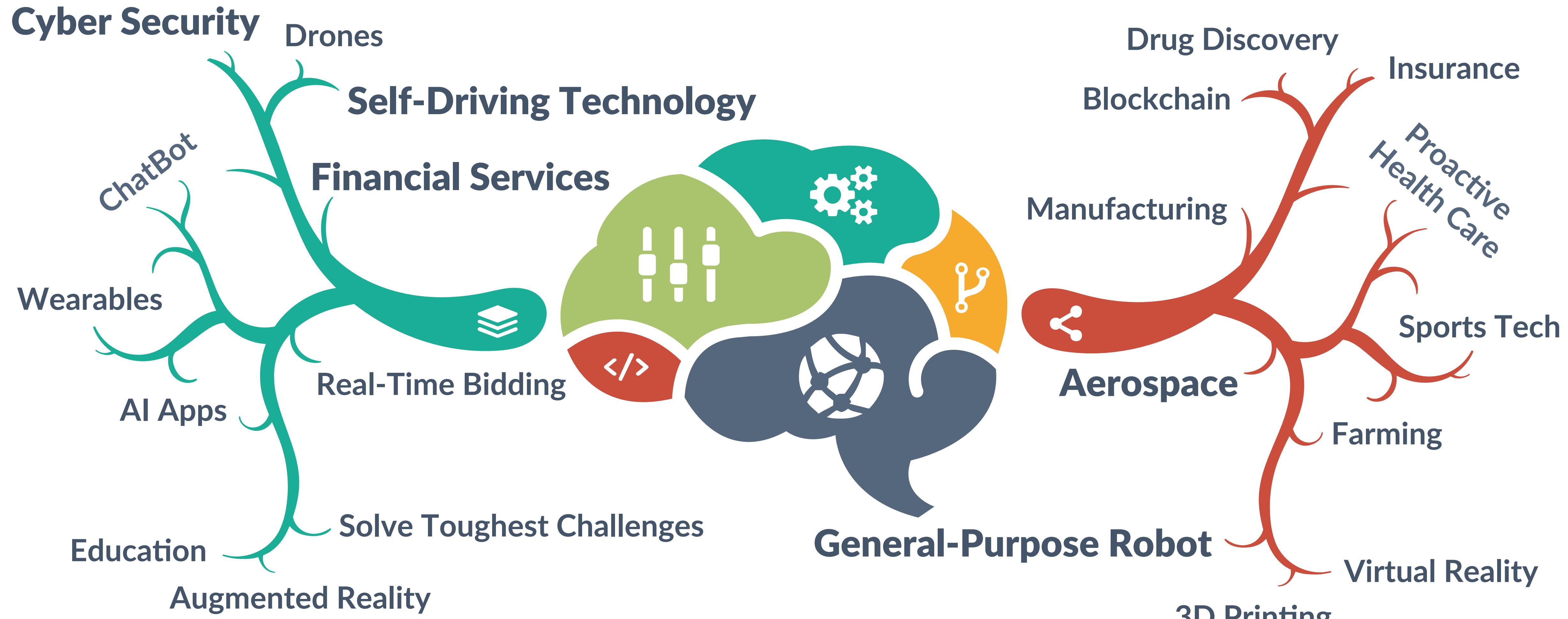
Reference: "Neural Architecture Search with Reinforcement Learning" By Barret Zoph and Quoc Le | Google Brain

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Mind Map

“What I cannot create, I do not understand.” — Richard P. Feynman



Applied AI: Leverage Research, Disrupt and Create New Markets

Our Chief AI Officers (CAIO)

"Hiring the Right AI Leader Can Dramatically Increases Your Odds of Success" — Andrew Ng

Deep AI Knowledge

Our Chief AI Officers (CAIOs) are world-class trustworthy deep learning experts, luminaries and true connoisseurs.

They fuel the passion that drive today's AI on a truly global scale!

APPLIED AI

Top, World-Class AI Talent

Exalting State of the Art Discoveries, Our CAIOs bring contributions by scholars recognized as the foremost authorities in their respective fields to push boundaries .



DEEP AI
KNOWLEDGE

SEASONED

Seasoned

Our CAIOs Work Cross-Functionally to enhance actual business lines and to adapt ground-breaking AI instruments to Fortune 500 with extraordinary impact.

WWW.CHIEFAOFFICERS.COM

AI Conferences and Award Ceremony

To Ensure Forward-Looking AI Expertise for Fortune 500, Governments and Startups

01

Conferences



Industry Conferences to leverage applied AI and orchestrate tangible AI benefits for fortune 500, governments and startups.

AI Mentoring



Mentoring to strategically leverage human AI skills to achieve full spectrum AI mastery.
Speaking engagements. Seminars. Webinars.

Award Ceremony 03



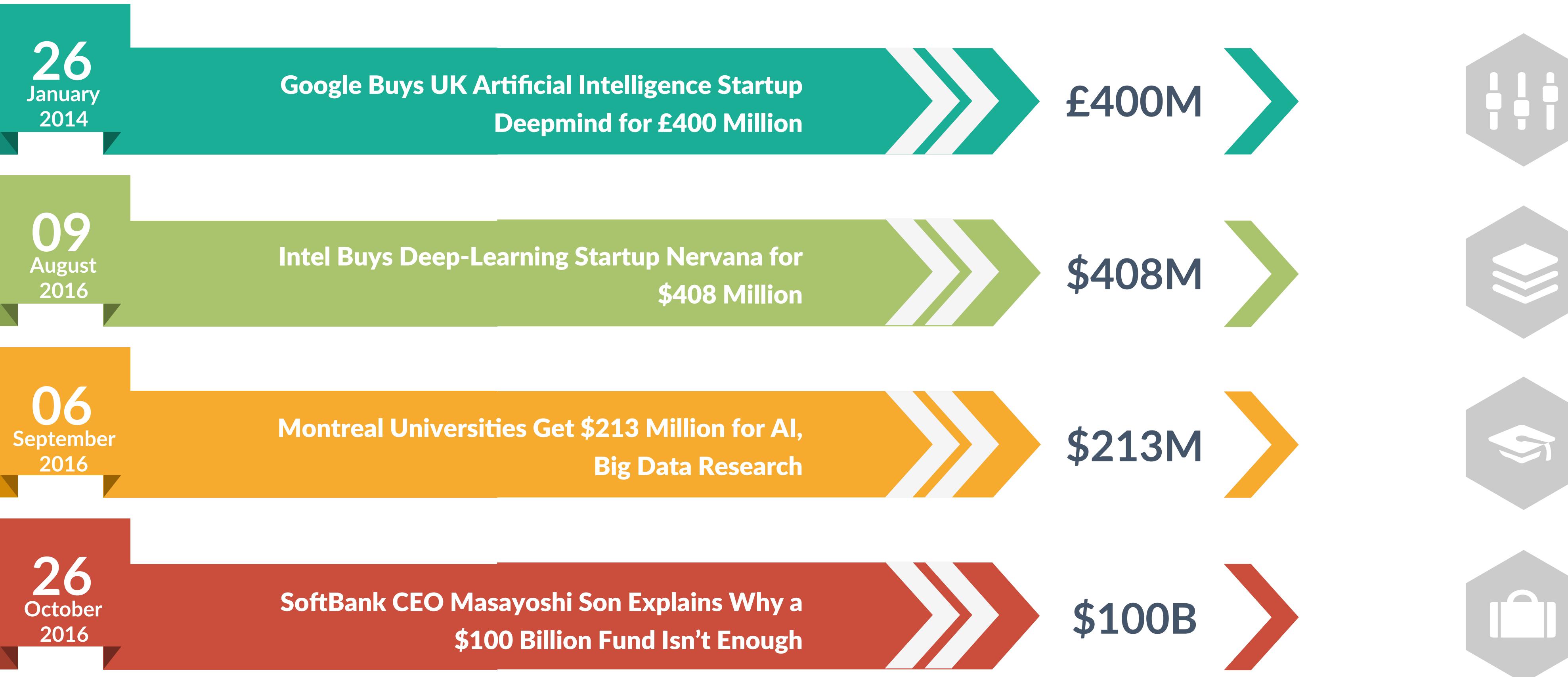
Award Ceremony to recognize outstanding achievement in the AI industry. Charity Recognition. Via Corporate Sponsorships.

"Last year, the cost of a top, world-class deep learning expert was about the same as a top NFL quarterback prospect.

The cost of that talent is pretty remarkable. — Peter Lee, Corporate Vice President of Microsoft Research

AI: Acquisition and Funding

AI Strategically Leverages Enterprises, Governments and Institutions to a Whole New Level



SWOT Analysis

It's Better to be First Than it is to Be Better



Immediate Applications

"AI is a Field of Science with Extensive Immediate Applications" — JORDAN JACOBS, TOMI POUTANEN, RICHARD ZEMEL,
GEOFFREY HINTON AND ED CLARK, The Globe and Mail, Saturday, Jan. 07, 2017

1

Autonomous Vehicle

Self-Driving Technology could reduce deaths on the road in Quebec by more 90 percent.

2

Personal Assistant

A smart personal **Game** **Theoretic AI Agent** with ability to reason (business negotiation).

4

Augmented Reality

The Fourth Transformation: Augmented Reality plus Artificial Intelligence.

5

Agriculture

Precision Farming. Advanced plant breeding. Real-time plant phenotyping. High yield crops.

3

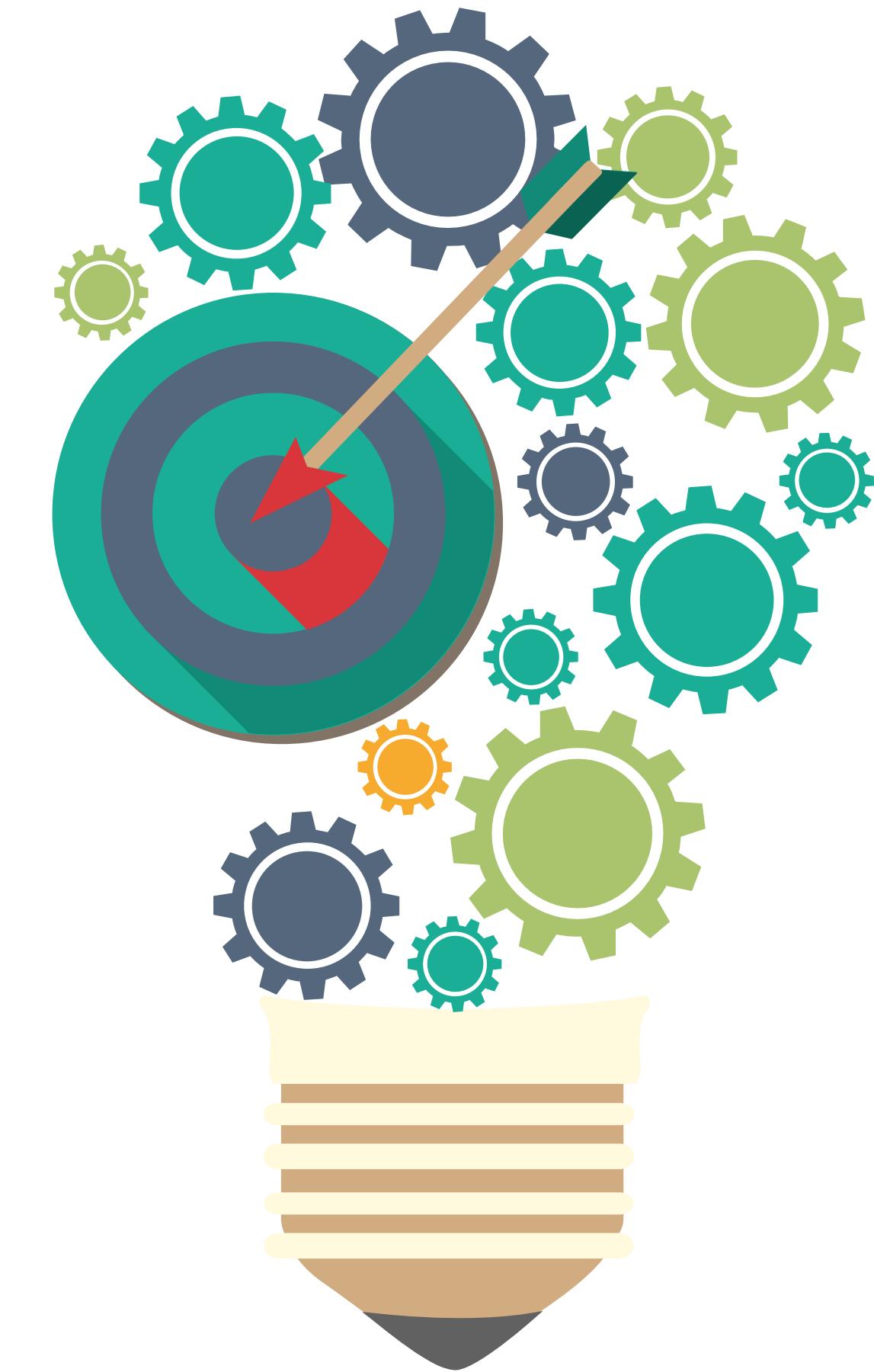
Health Care

Streamlining Health Care: AI can infallibly recognize the emergence of a tumor.

6

Financial Trading

A superhuman agent that learns to trade from its experience. — **"Cracking Wall Street."**



Flagship Project: Superintelligent AI

"Never send a human to do a machine's job." – Agent Smith



Flagship Project: Conversation

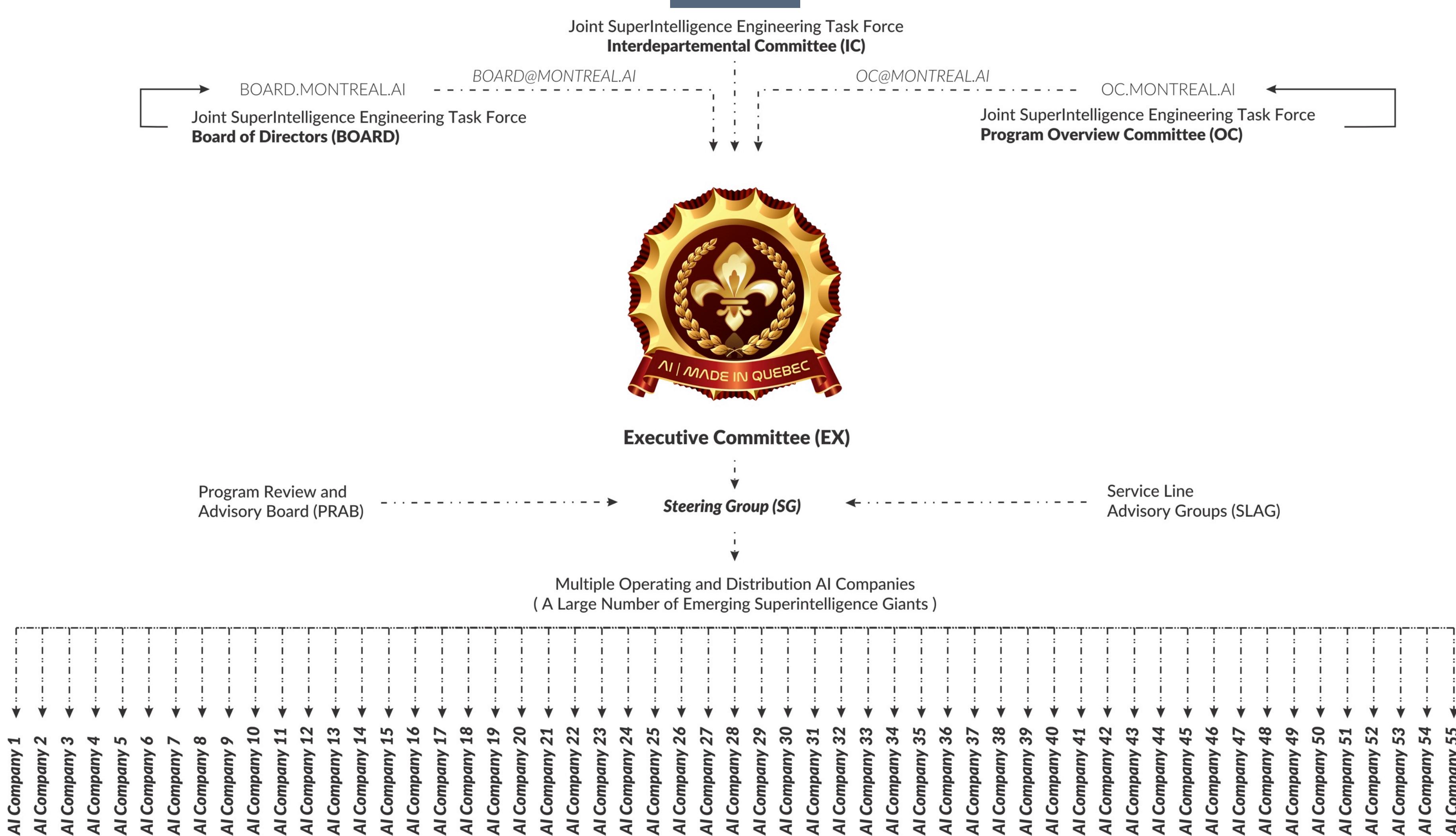
A general-purpose, intuitive and transformative high-level machine intelligence chatbot more cognitively capable than humans and leveraging conversational interfaces to save businesses money.

- ✓ Negotiate with humans ;
- ✓ Compete with highly paid employees ; and
- ✓ Develop bespoke strategies tailored to senior decision-makers.

P.S. This is an agent capable of predicting human strategic behavior.

Corporate Governance

A Large Number of Emerging Superintelligence Giants Spreading Across a Landscape



Smart Marketing

“Great Execution is the Ultimate Differentiator.” — Margaret Molloy



Interviews

Major talk show appearances,
feature film and TV documentary.



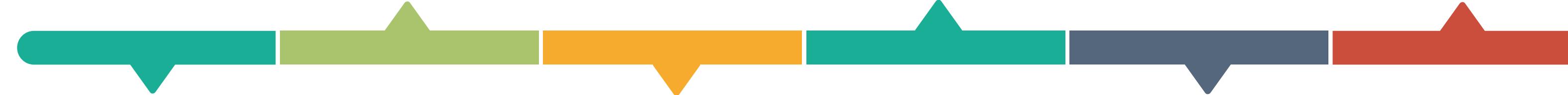
Endorsements

Endorsements by world foremost
authorities and scholars.



Go To Events

High visibility PR campaign.
Develop industry seminars.



Education-Based Marketing

To position us as an expert and
a special breed provider.



Award Ceremony

Honor the Montreal AI industry.
Judges from our dream 100 list.



Social Media

Compelling dominant presence to
create top of mind awareness.

Business Model: Joint Task Force

Multiple Operating and Distribution AI Companies



Structure

MtIIA inc.'s umbrella:
multiple operating and distribution companies.

Joint Superintelligence
Engineering Task Force Framework.



Strategy

"Go Big or Go Home" A new powerful model of Superintelligence giants.

Harnessing
Superintelligence on a truly global scale.



Advertising

Smart Marketing to position **MtIIA inc.** as a special breed provider.

Designing Deals: Design and pitch a deal that appeal to everyone.



Management

Leadership Partnership:
Passion, Purpose and Performance.

Captains of Industry,
Iconic Entrepreneurs and Successful Financiers.



Target

Leverage research and orchestrate tangible benefits.

Entrepreneurs, fortune 500, governments, institutions and startups.

A new powerful model for a large number of emerging superintelligence giants spreading across a landscape and orchestrating a meta-solutions on a truly global scale.

"Countries that lead in AI research and application are expected to see a doubling of their economic growth rates."

— JORDAN JACOBS, TOMI POUTANEN, RICHARD ZEMEL, GEOFFREY HINTON AND ED CLARK, The Globe and Mail, Saturday, Jan. 07, 2017

Philanthropy: A Scalable Impact

Solving UNESCO's Educational Objectives to Support the Achievement of Education for All



*You can't think about thinking without thinking
about thinking about something.*
— Seymour Papert

Education for all is the one most capable of responding to the fundamental paradigm shift underway internationally.

“... in full and equal opportunities for education for all, in the unrestricted pursuit of objective truth and in the free exchange of ideas and knowledge”

— Preamble to UNESCO's Constitution

In line with luminaries such as **Bill Gates, Warren Buffet, Reach the Children**, former President **Jimmy Carter** and many others, we will contribute a superhuman agents to Solve UNESCO :

A continuously improving **real-time game theoretic superintelligent chatbot** designed by an agent (via deep meta-learning) learning a student's strengths and weaknesses and tailoring its approach to empower children to experiment, explore, and express themselves.

Partner With Us

We are looking for Ambassadors, Associates and Partners



We are starting an effort reaching out to Captains of Industry, Iconic Tech Entrepreneurs, Philanthropists, Scholars and Successful Financiers to join us.

“Nothing is more powerful than an idea whose time has come.” — Victor Hugo





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Contact Us

See Things from a New Vantage Point



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www.montreal.ai

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THANK YOU

"A hundred years ago electricity transformed countless industries; 20 years ago the internet did, too. Artificial intelligence is about to do the same. To take advantage, companies need to understand what AI can do." — Andrew Ng