EP Edgar Perez

EDGAR PEREZ
WORKSHOP TOPICS

ARTIFICIAL INTELLIGENCE WORKSHOP FOR THE 21ST CENTURY

Comprehensive Overview - Enabling Technologies - World of Opportunities

Artificial Intelligence (AI) is the science and engineering of creating intelligent machines that can perform tasks that normally require human intelligence, such as perception, reasoning, learning, decision making, and communication. AI has been transforming various domains of human activity, from business and entertainment to healthcare and education. Today, AI is helping organizations to streamline and optimize processes ranging from customer service and credit decisions to identity solutions and financial risk management.

One of the most successful and widely used techniques in AI is Machine Learning (ML), which is the process of creating and using computational models that can learn from data and improve their performance over time. ML grew out of traditional statistics and artificial intelligence communities, and has benefited from the advances in computing power, data availability, and algorithmic innovations, giving birth to the new field of Deep Learning (DL). Some of the applications of DL include natural language processing, computer vision, speech recognition, recommendation systems, and self-driving cars.

However, AI is not a static field; it is constantly evolving and expanding with new discoveries and developments. In fact, one of most profound developments in the world of AI has been OpenAI's Generative Pre-trained Transformer 4 (GPT-4), an example of Generative AI. This is one of the most powerful and versatile natural language models ever created. It can generate coherent and fluent text on almost any topic, given a few words or sentences as input. It can also answer questions, write essays, compose emails, create summaries, and much more. GPT-4 is based on a deep neural network with an estimated 1 trillion parameters, trained on a large corpus of text from the internet.

This is just one of the exciting and cutting-edge developments in AI that Mr. Edgar Perez will cover in his ARTIFICIAL INTELLIGENCE WORKSHOP FOR THE 21ST CENTURY. By the end of this workshop, you will have a better understanding of the current state and future directions of AI, and how you can leverage its potential to further your organization's goals.

CASE STUDIES

◎ ChatGPT, OPTIMIZING LANGUAGE MODELS FOR DIALOGUE

OpenAI's latest model interacts in a conversational way and revolutionizes man-computer interactions

- ChatGPT's dialogue format makes it possible to answer questions based on publicly available information online
- OpenAI trained this model using Reinforcement Learning. To create a reward model, OpenAI collected comparison data, conversations that AI trainers had with the chatbot, that were ultimately ranked
- Using these reward models, OpenAI fine-tuned the model using Proximal Policy Optimization; they performed several iterations of this process
- ChatGPT derives from the GPT-4 series of language generators; OpenAI is said to be currently preparing GPT-5

◎ IDENTIFYING TUMORS WITH IBM'S WATSON

Revolutionizing cancer care by helping doctors and surgeons make better decisions

- IBM has revealed that its Watson Artificial Intelligence system is capable of identifying tumors with 93% accuracy
- Watson examines medical images and patient records, comparing them to thousands of past cases and medical journals to come to a conclusion
- 55 hospitals around the world have been using the system to help them diagnose patients for breast, lung, colorectal, cervical, ovarian, gastric and prostate cancers
- IBM expects the technology will be extended to detect further cancer types and rolled out to other hospitals worldwide

USING DEEP LEARNING TO BRING MAN-MACHINE CONVERGENCE TO THE FORE

Neuralink's next generation of brain-computing interfaces (BCIs) are super charged by Deep Learning
• Neuralink is developing devices that, once implanted in the human brain, will allow a computer to translate a person's thoughts into action by simply thinking about the desired result instead
• The company foresees a world where everybody will need such brain-computer interfaces as the only way to keep up with rapidly advancing artificial intelligence
• There is a world of medical applications for BCIs, from restoring some agency and capability to people with spinal cord injuries to treating conditions such as Parkinson's or multiple sclerosis or schizophrenia

GOOGLE'S ALPHAGO'S UNPRECEDENTED VICTORY OVER GO CHAMPION

Leveraging a general-purpose algorithm to master a complicated game
• On January 27, 2016, there was a report in "Nature" magazine about DeepMind's program AlphaGo
• The program defeated Fan Hui, the European Go champion, five times out of five in tournament conditions
• AlphaGo was not preprogrammed to play Go. Rather, it learned using a general-purpose algorithm that allowed it to interpret the game's patterns
• AlphaGo program applied Deep Learning in neural networks, brain-inspired programs in which connections between layers of simulated neurons are strengthened through examples and experience

DEEPFAKES AND THE POTENTIAL FOR EXTREME FINANCIAL AND POLITICAL MANIPULATION

Relatively easy-to-use and widely-available tools allow videos to be digitally manipulated
•   Potential for financial and political manipulation: making a Fortune 500 CEO or high-profile candidate for political office appear to say or do something they did not
•   Expert eyes can detect unnatural mouth movements and glitches that a real person would not make: how individuals can learn to successfully navigate in this new world

HOW TIKTOK IS REWRITING THE WORLD

TikTok's hyper-personalized, addictive algorithm has captured over 1.6 billion monthly users worldwide
•   TikTok serves users content based on specific user input and engagement rather than the traditional likes, comments, and following
•   Its recommendation strategy analyzes videos based on three factors: computer vision, natural language processing (NLP), and metadata
•   Users are continually being served content that is based on the content-based and collaborative filtering algorithms
•   TikTok's use of Deep Learning demonstrates the power that extensive data and a great algorithm can have in connecting users to the content they want to consume

THIS PROGRAM WILL SHOW YOU HOW TO TURN ARTIFICIAL INTELLIGENCE INTO A BUSINESS TRANSFORMATION OPPORTUNITY

Learn how to harness the opportunities Artificial Intelligence offers, how to identify challenges and how to prepare your organization for what the future holds. From robotic investing to facial recognition, and from video recommendations to customer service chatbots, practical applications in Artificial Intelligence are already here and will impact your business for the years to come

Gain Strategic Advantage

Gain a comprehensive overview of Artificial Intelligence and see how discovering intricate structures in large data sets by using powerful algorithms can be harnessed into business transformation opportunities

Get The Latest Insight

Get to grips with the enabling technologies, from neural networks to big data, as well as their applications in various industries, such as healthcare, manufacturing, transportation, customer service and finance

Devise A Strategy

Understand the impact of Artificial Intelligence in your business and devise a strategy to move the organization forward

THIS WORKSHOP WILL ALLOW YOU TO:

Get up to speed on how Artificial Intelligence will impact global business

Understand the role of Artificial Intelligence in healthcare, manufacturing, transportation, customer service and finance

Look at the landscape of how Artificial Intelligence stands today, why it is gravitating towards Generative AI and how that fits into your organization's future

Review key enabling technologies including big data and computing processing

Learn to personalize the customer experience from Google searches to Amazon recommendations

Devise a strategy to move the organization forward and focus on the company's most pressing points to leverage Artificial Intelligence

Embed Artificial Intelligence in your organization's existing technology development life-cycle

Understand why Deep Learning is today Artificial Intelligence's most successful approach

ORGANIZATIONS THAT WILL BENEFIT

All Forward Thinking Companies
Healthcare Companies
Manufacturing Companies
Transportation Companies
Customer Service
Banking and Financial Services
Law and Consulting Firms
Ecommerce Companies
Insurance Companies
Government & Regulators

EXECUTIVES EXPECTED IN ATTENDANCE

C-Suite Executives: CIOs, CTOs, COOs and CEOs
Chief AI Officers
Chief Customer Officer
Chief Data Officers
Chief Digital Officers
Chief Innovation Officers
Chief Learning Officers
Chief Legal Officers
Chief Medical Officers
Chief Product Officers
Corporate Strategists
Data Management
Heads of AI
Heads of Big Data
Heads of Machine Learning
IT Managers
Private Equity Executives
Research Managers
Security Analysts
Venture Capitalists

AGENDA

Edgar's **ARTIFICIAL INTELLIGENCE WORKSHOP FOR THE 21ST CENTURY** will provide insights into current and future developments for Artificial Intelligence, with particular emphasis on what organizations can do today to leverage this revolutionary technology and apply it to their most pressing challenges.

DAY 1: HOW ARTIFICIAL INTELLIGENCE HAS EVOLVED

SESSION 1: WHAT'S ALL THE FUSS ABOUT?

- The present of Artificial Intelligence
  - Speech recognition
  - Computer vision
  - Natural language processing
  - ChatGPT, Midjourney and more
- How the human brain works

CASE STUDY 1: Identifying tumors with IBM's Watson

SESSION 2: ARTIFICIAL INTELLIGENCE (AI)

- Leveraging huge amounts of information from specific domains to make decisions
- Why companies are attracted to AI applications
- The risks of AI:
  - Job displacement on steroids
  - Singularity: when AI surpasses human intelligence
  - Will AI control humans?

CASE STUDY 2: Using deep learning to bring man-machine convergence to the fore

SESSION 3: MACHINE LEARNING

- Algorithms to find patterns in data fed to it by humans
- Supervised, unsupervised and reinforcement learning
- The challenges for Machine Learning

DAY 2: MACHINE LEARNING, ARTIFICIAL INTELLIGENCE'S MOST SUCCESSFUL APPROACH

## SESSION 1: UNDERSTANDING NEURAL NETWORKS

- The neuron as the computational unit in the neural network
- Feedforward and backpropagation algorithms
- Learning a representation through autoencoders
- Limitations of neural networks

⬤ **CASE STUDY 1: Google's AlphaGo's unprecedented victory over Go champion**

SESSION 2: THE IMPORTANCE OF BIG DATA ANALYTICS

- Helping organizations make business decisions by examining large and varied data sets to uncover:
  - o Hidden patterns
  - o Unknown correlations
  - o Market trends
  - o Customer preferences
- The challenge of managing huge amounts of data
- How Deep Learning leverages the increased availability of computation power through the cloud
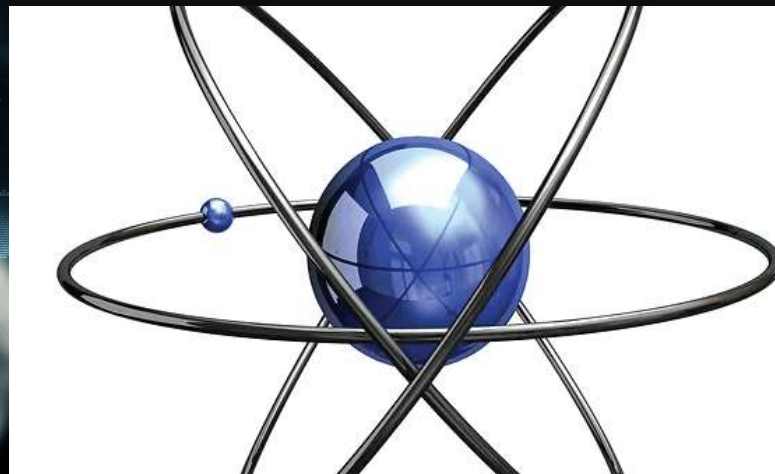
⬤ **CASE STUDY 2: Deepfakes and the potential for extreme financial and political manipulation**

SESSION 3: MACHINE LEARNING BUSINESS APPLICATIONS

- Using visual observation to determine a medical diagnosis from a picture
- The factory of the future: robotics, cloud computing, IoT and additive manufacturing

DAY 3: HOW ARTIFICIAL INTELLIGENCE IS CHANGING THE WORLD

SESSION 1: WHAT IS DEEP LEARNING

- Introduction
- Using a Neural Network with several layers
- Shallow and Deep Learning
- Recurrent Neural Networks
- Convolutional Neural Networks
- Generative Adversarial Networks
- Experimenting with TensorFlow Playground

CASE STUDY 1: How TikTok is rewriting the world

SESSION 2: GENERATIVE AI AND THE MAGIC OF LLMs

- What are Large Language Models (LLMs)?
- The Transformer Architecture and the birth of Generative Pre-trained Transformer 3 (GPT-3)
- Automated generation of images, videos and more
- Opportunities and challenges with Generative AI

CASE STUDY 2: ChatGPT, optimizing language models for dialogue

SESSION 3: THE FUTURE OF ARTIFICIAL INTELLIGENCE

- The most promising Artificial Intelligence applications today
- Why unsupervised learning will become far more important in the future
- How far can Generative AI take us?
- Room for improvement in Artificial Intelligence