Digital Academy

CENTRAL BANK OF EGYPT

# Option 1. Artificial Intelligence Specialisation

**Course 1- Foundations of Artificial Intelligence: Applications and Trends**

What is AI? The first chapter of the course defines and describes the impact of AI inside and outside of Finance. Going through examples, analysing the causes, demystifying some concepts and sharing a framework for finance innovation, Dr Ayesha Khanna will give you the big picture of the AI revolution,and what is driving it. Huy Nguyen Trieu will provide an update on the overall trends and growth trajectory of AI.

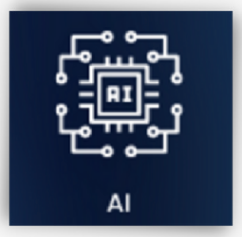
**Module 1 Introduction to Artificial Intelligence**
- 1.1 What is AI?
- 1.2 History & Adoption of AI
- 1.3 Talent & AI
- 1.4 AI Initiatives
- 1.5 Summary

**Module 2 Use Cases of AI Outside of Finance**
- 2.1 The Six Pillars of AI
- 2.2 Automation & Personalisation
- 2.3 Optimising & Detecting Anomalies
- 2.4 Forecasting & Innovating with AI
- 2.5 Our Role in an AI World
- 2.6 Summary

**Module 3 Use Cases of AI in Finance**
- 3.1 Automation
- 3 2 Personalisation
- 3.3 Optimisation & Anomaly Detection
- 3.4 Forecasting
- 3.5 Innovation
- 3.6 Summary

**Module 4 Industry Drivers of AI in Finance**
- 4.1 Startups
- 4.2 Investors
- 4.3 Financial Institutions
- 4.4 Technology Companies & Regulators
- 4.5 Summary

**Module 5 AI Trends and Future Developments**
- 5.1 AI and the Acceleration of Digitalisation
- 5.2 New Technologies and Applications
- 5.3 AI and the Great Reset
- 5.4 AI's Role in Inclusive, Responsible and Sustainable Finance
- 5.5 Future Challenges and Concerns
- 5.6 Accelerated Transformation Trends




## Learning Outcomes

- Understand the main underlying technologies of AI development
- Grasp many key applications of AI to create value in financial institutions and the role of people in facilitating AI
- Understand how to make strategic and ethical AI integrations in your organisation
- Enhance your skillsets in finance and technology with the most up-to-date and insightful industry knowledge on AI

**Philip Watson**
Chief Innovation Officer, Citi Private Bank

**Jon-Tzeng Ng**
Chief Strategy & Innovation Officer, Ping An Technology

**Winnie Cheng**
Director AI Lab, PwC

**Huy Nguyen Trieu**
Co-founder, CFTE

**Ayesha Khanna**
CEO, ADDO.AI

# Option 1. Artificial Intelligence Specialisation

**Course 2- AI Technologies: Machine Learning Techniques, NLP and Recommendation Engines**

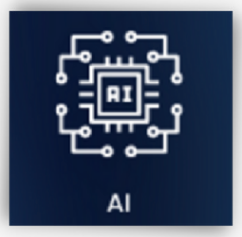
This course will give you an overview of AI Technologies. Initially, the taxonomies of AI, machine learning and deep learning will be discussed. We will explore the numerous steps needed to design and build an AI system, including data preparation and the modelling process. Then two kev applications will be investigated in detail: Natural Language Processing and Recommendation Engines.

**Module 1 AI, Machine Learning and Deep Learning**
- 1.1 Introduction to AI, Machine Learning and Deep Learning
- 1.2 Model Training
- 1.3 Examples in Finance

**Module 2 Building AI: Data, Models & Training**
- 2.1 Building an AI System
- 2.2 Preparing Data
- 2.3 The Modelling Process
- 2.4 Training Algorithms
- 2.5 Tools for AI

**Module 3 Natural Language Processing**
- 3.1 An Overview of NLP
- 3.2 How NLP Works
- 3.3 Applications of LP in Finance

**Module 4 Recommendation Engines**
- 4.1 An Overview of Recommendation Engines
- 4.2 How Recommendation Engines Work
- 4.3 Approaches to Recommendation Engines
- 4.4 Applications of Recommendation Engines in Finance

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# Option 1. Artificial Intelligence Specialisation

**Course 3- Implementing AI in an Enterprise: Technology Skillets and Regulation**

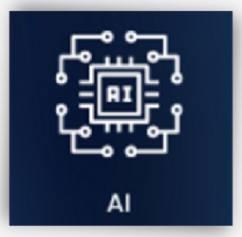
This course will discuss the implementation of AI in an enterprise. Initially, a strategic framework for AI implementation will be outlined with a particular focus on how technologies can be accessed by financial institutions. Following this, the numerous infrastructure requirements to implement AI will be discussed. A keep dive on two key areas will then be investigated: The role of people in an AI enabled world, and ethical considerations of AI implementation.

**Module 1 Integration of AI at a Strategic Level**
- 1.1 System vs Competitive Innovation
- 1.2 A Strategic Framework for AI
- 1.3 Accessing Technologies in Enterprise

**Module 2 Infrastructure for AI**
- 2.1 Innovation Capabilities
- 22 Data
- 2.3 Technical Infrastructure

**Module 3 The Role of People**
- 3.1 AI & The Workforce
- 3.2 AI Skillsets in the Workforce
- 3.3 Talent Opportunities & Challenges

**Module 4 Ethics and Risks**
- 4.1 Model Validation
- 4.2 Cooperation Between Humans and Machines
- 4.3 Risks and Solutions

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# Option 1. Artificial Intelligence Specialisation

**Course 4- Applications of AI in Finance: Use Cases from the Industry**
This course will highlight some of the key applications of AI in finance. This course will be longer than the other courses in the specialisation, each of the six modules will focus on a single application area and will provide detailed insight into how each application creates value in financial services as well as highlighting the industry participants who are leading implementation.

**Module 1 Wealth and Asset Management**
- 1.1 AI in Wealth and Asset Management
- 1.2 The Benefits of AI in Wealth & Asset Management
- 1.3 Market Research & Data Analytics
- 1.4 Investment Strategy & Trading
- 1.5 Robo-advisors

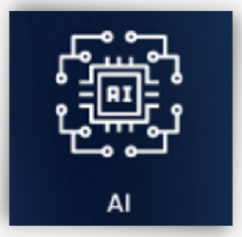
**Moodle 2: Insurance**
- 2.1 Insurance Fundamentals
- 2.2 The Insurance Value Chain
- 2.3 Product Development & Behavioural Pricing
- 2.4 Customer Experience & Personalisation
- 2.5 Claims Management & Fraud Detection

**Module 3: Customer Services**
- 3.1 Customer Service Fundamentals
- 3.2 Benefits of AI in Customer Services
- 3.3 Examples of AI in Customer Services

**Module 4: Robotic Process Automation**
- 4.1 PA Fundamentals
- 4.2 Uses Cases of RPA
- 4.3 PA Evolution & Limitations

**Module 5: Credit Scoring**
- 5.1 Credit Scoring Fundamentals
- 5.2 Alternative Credit Scoring
- 5.3 Opportunities and Challenges

**Module 6: Compliance and Fraud Detection**
- 6.1 Compliance Fundamentals
- 6.2 Understanding Compliance
- 6.3 Designing & Implementing Processes
- 6.4 Compliance Reporting

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# Option 2.
# Payments Specialisation

**Course 1- The Historical, Economic and Social Importance of Payments**
Learn about the payment instruments used by our society over the years and how banks and central banks evolved to what they are today. Discover the trends driving payments today such as financial inclusion, and explore advancements that will shape the future of payments.

Ch 1: A short history of money and payments: from the gift economy to digitial
Ch 2: Means of payments today: an analysis of the money supply
Ch 3: Payments and settlements in the modern monetary system
Ch 4: Payments in modern societies
Ch 5: The future of money and payments

**Course 2- Payment's Industry Fundamentals / The Stack**
Gain an insight into the payment infrastructure, including key payment players, payment standards and schemes, and the payment economics of today. The experts share their first-hand learnings in this space, hailing from organisations such as SWIFT, Clearbank, Central Bank of Hungary and many more.

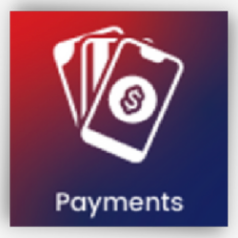
Ch 1: The Payment Business Domains of today
Ch 2: The Actors and Industry Structure
Ch 3: The Different Payment Methods/Schemes
Ch 4: Standards and Infrastructure
Ch 5: Payment Operations
Ch 6: Key Revenue and Expense Drivers in the Payment Industry

**Course 3- Regulatory, Compliance, Risk, Security and Privacy Aspects**
This course introduces learners to the regulatory environment and regulatory bodies in di erent parts of the globe including the EU, US and Asia-Pacific. Industry experts will discuss the current and future payment trends as well as the actions being taken by regulators to support innovations in payments.

Ch 1: Payments Regulation: Understanding the who, what and why of payments Regulation in the European Union
Ch 2: Payment Regulation: Understanding the who, what and why of payments Regulation in the United States
Ch 3: Payments Regulation: Understanding the who, what and why of payments Regulation in Asia-Pacific
Ch 4: Financial Crime Compliance
Ch 5: Data Privacy and Cybersecurity
Ch 6: The Emerging Payments' Regulatory Landscape

**Course 4- New Technologies and Product Innovations**
Explore a vast array of payment innovations in modern digital finance impacting the payments stack and how collaboration is crucial for banks to survive and thrive in the new normal. We also look at how new solutions can significantly reduce the risks of financial crime, explore the Internet of Things (IoT), and conclude with a discussion of some hot topics in payments today such as DLT and CBDCs.

Ch 1: Technology: What does a modern payments tech stack look like?
Ch 2: Technology-driven innovation in action. Key areas and actors
Ch 3: Leveraging Data and AI to improve customer experience and Combat Fraud
Ch 4: The next frontier in Payments - Internet of Things (IoT) and Invisible Payments
Ch 5: Potential Impact of DLT and CDC on payments



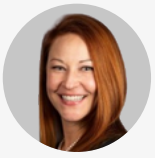

## Learning Outcomes

- Understand money for what it truly is today and how it will change in the future
- Learn how payments impact financial stability and monetary policy
- Explore how global cybersecurity regulations continue to evolve
- Understand what the modern full payments stack looks like
- Recognise what central bank digital currency proposals exist around the world and what are the regulatory views on cryptocurrency

**Jean-Michel Godeffroy**
Former Director General, ECB

**Michael O'Loughlin**
Founder, Oloughlin,io

**Ritesh Jain**
Former COO, HSBC



**Kim Ford**
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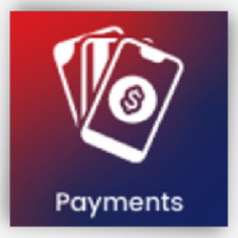
# Option 2.
# Payments Specialisation

**Course 5- Payment Product strategies & Business Model Innovations**
You will look at the business models of the payment industry and their evolution. With increased competition, multiple parties in the ecosystem race to faster and cheaper payments service. Explore what's the role of the players and ultimately who and how will they make money to survive and thrive.

Ch 1: The Payments Business: who makes money in payments
Ch 2: Business Model enhancing advantage and value creation through innovaiton in payments
Ch 3: Data Monetisation and Identity Management Service
Ch 4: Open Finance reshaping the Banking and Payments Industry

**Course 6- Leveraging Payments ecosystem & Driving digital transformation in payments**
How can an individual or organisation take steps to digitally transform themselves in the new digital payments ecosystem?
With payment methods transforming and traditional banking relations changing, senior executives need to set direction to ensure their nancial tooling remains fully supportive of the core business. Participants will understand the importance of digital transformation in the payments industry, from the ISO20022 revolution to Open Banking and IoT.

Ch 1: What needs to be transformed - the rationale for a digital transformation programme
Ch 2: How to kick-off and run a Payments DT/innovation programme
Ch 3: Taking Inspiration & leveraging the Digital Payments ecosystem to transform your e-business
Ch 4: Taking inspiration & leveraging the Digital Payments ecosystem to transform your corporate
finance functions

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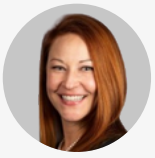

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# Option 3.
# Open Banking Specialisation

### Course 1- An Industry Overview of Open Banking

Learn the background and fundamental knowledge of a new stage of finance: platform ecosystems. Regulators and businesses, old and new, must work together to unlock the full potential of this consumer-centric movement. Lectures will cover the ABCs of Open Banking - how you should position yourself and your organisation.

### Course 2- Business Models and Implementation of New Entrants

You will look at the different profiles and roles of new entrants in the finance industry as Third-Party Providers in the Open Banking ecosystem. Learn 5 recognised commercial opportunities enabled by the new technological architectures and the associated risks through a multitude of real use cases around the world.

### Course 3- Business Models and Transformation of Incumbents

Understand why now is the right time for an incumbent financial institution to develop and execute a strategic plan for Open Banking. Examine possible business models that incumbent players could implement to monetise APIs, among other technologies. Discuss the success factors for incumbent banks to take advantage of open banking capabilities and trends, and how Open Banking can be the key enabler for the digital transformation of large financial institutions.

### Course 4- Regulations, Standards and Operational Risks

Gain an overview of Open Banking regulations and how they can vary across different jurisdictions. Learn the differences between the Mandatory, Facilitative, and Market-driven approaches adopted to implement Open Banking through a detailed analysis of case studies from around the globe. Then look at the different types of data standards in-place and future possibilities in the field while outlining the risks and benefits of Open Banking.

### Course 5- Technology and Security

This course gives a high-level explanation on Open Banking technologies, such as API technology and what kind of services are enabled by its implementation. Deep dive into topics of security, identity management, and access control in this new era of platform ecosystems. Finally, learn the software development process in services and the ways to navigate potential operational challenges.


## Learning Outcomes

- Explore the business model that made Amazon a global superpower: the platform ecosystem
- Understand the roles of third-party providers within the Open Banking ecosystem
- Analyse the API business model in the Open Banking and Embedded Finance revolution
- Understand the roles of third-party providers within the Open Banking ecosystem

**Paul Rohan**
Head of Business Strategy, Solution Consultant, Google Cloud

**Stephan Murer**
Former Global Chief Technology Officer at UBS

**Secil Watson**
Executive Vice President, Wells Fargo

**Carlos Figueredo**
CEO and Founder, Open Vector

**Anna Maj**
intech & Payments Expert