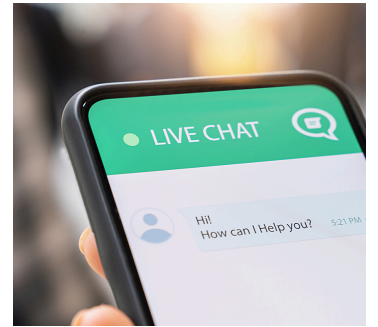


# AI Essentials in Banking & Finance

LEARNING CREATED AND DEVELOPED BY INTUITION



With the rapid advancement of artificial intelligence (AI), nearly every company is exploring how AI will affect them and how to integrate it into their business. The key to successful integration is to ensure appropriate training in essential AI concepts.



**Intuition has developed a flexible programme covering essential AI concepts, designed for teams at financial services companies.**

Our aim is to offer your team a sufficiently detailed grounding to operate in an AI-enabled world, while ensuring that the content is presented in a way that is accessible even to those with little or no technical experience.

This summary explains our workshops offering by content, format and faculty.

## WHAT CONTENT CAN WE COVER?

- Introduction to AI
- Applications of AI and ML in financial services
- Opportunities to use AI in your company
- AI Risks

We welcome the opportunity to discuss the workshop that will work best for your business so that we can tailor the session to address your business requirements.



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## WHAT CONTENT CAN WE COVER?

**Our workshops can include any or all of the following.**

(We can also discuss different or more advanced content.)

### INTRODUCTION TO AI

- Key terms
- Brief history of the development of AI
- Types of current AI and machine learning (ML) applications, and how they are likely to evolve in the future including the new capabilities and applications of Generative AI.

### APPLICATIONS OF AI AND ML IN FINANCIAL SERVICES

Key existing and emerging use cases, including (see Appendix for further details):

- Trading and portfolio management
- Credit scoring and credit risk management
- General risk management
- Personalised banking
- Customer communications and retention
- Financial crime detection
- KYC and AML
- HR
- IT Operations
- Interactive, practical discussion of how these use cases may be relevant to your business

### OPPORTUNITIES TO USE AI IN YOUR COMPANY

- Choosing use cases and building teams around them
  - Brainstorming and evaluating use cases
  - Identifying required skills, and hiring for or building them
- How to use ChatGPT and similar tools effectively
  - Understanding how ChatGPT works
  - Hands-on workshop on basics of prompt engineering
  - Risks of using ChatGPT

### AI RISKS

- Key risks, including:
  - Misinformation
  - Market manipulation
  - Market instability
  - Impersonation
  - Cybersecurity
  - Bias/discrimination
- Best practices for AI governance and risk management

We prefer to deliver workshops to a live audience, to allow robust interactive elements including Q&A.

We can do so either in person (usually better for longer workshops) or over a video link.

The duration of our workshops can range from a few hours to several days. Remote programmes can be broken into smaller instalments to be delivered over time and/or repeated.





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## INTUITION FACULTY

MEET THE EXPERTS



Our workshops are delivered by these leading experts, with additional or other faculty members where appropriate.

### FACULTY LEAD ON AI BEST PRACTICE

[Simon](#) is a seasoned international executive, investor, and board member with over two decades of experience in AI and tech innovation. As MapQuest's co-founder, he was at the forefront of internet and AI developments. He is currently a Partner at Best Practice AI, consulting on AI strategy, technology, and governance. Best Practice AI have worked across industries and companies globally and were key to the Evident AI benchmark indexes on financial services companies. A contributor to the World Economic Forum's Expert Network and until recently served on their Global AI Council. Simon spent over a decade as Chief Digital Officer leading digital transformations of PE-owned directory companies and worked with brands like HomeAdvisor, Bowers & Wilkins, AOL, and Accenture. He is active in the UK start-up ecosystem. Simon holds an MBA from Harvard and a BA in Computing and AI from Sussex University.

### FACULTY LEAD ON AI FOR FINANCIAL MARKETS

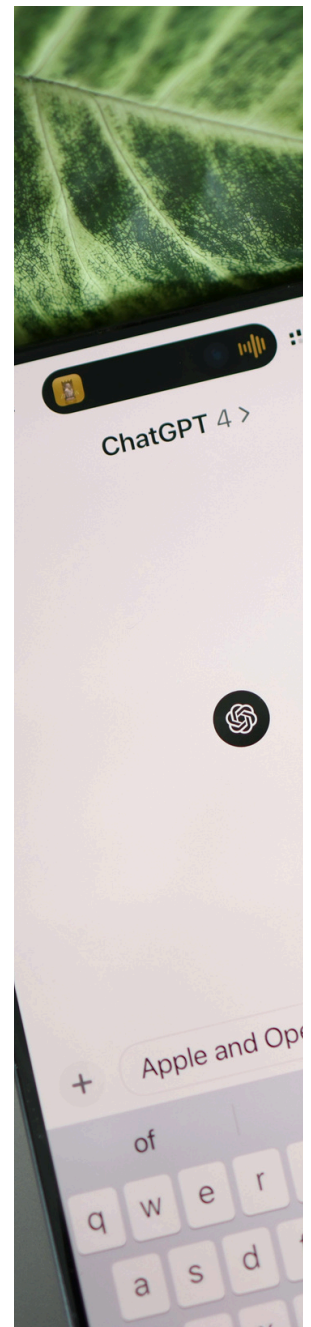
[Peter](#) has a very strong reputation and expertise in fixed-income, interest rate and FX markets, which for over 25 years he has applied to training and professional consulting on these markets. Peter's knowledge is built on his own experiences as a senior trader at J P Morgan and at Bear Stearns. His approach as an instructor is highly sought-after for its practicality and strong connection with real markets and transactions. Peter has taught fixed-income and treasury courses to professionals at all of the major G-SIB banks and in all major centres globally.

Peter has recently been called upon to provide training on current and potential applications of AI, especially ML, in the analysis, investment management and trading of Equities, Fixed-Income, FX and related derivatives. Peter specialises in the business 'use cases' for ML.

### FACULTY LEAD ON AI FOR RISK, LEGAL & COMPLIANCE

[Maury](#) is an experienced entrepreneur, lawyer and investor, with expertise in AI, education technology, IT services, digital media and green technology. Maury is CEO of EdTech start-up LearnerShape, senior advisor to EdTech company PeopleCert and global law firm Steptoe (where he was formerly a managing partner), managing director of his family consulting and investment firm Lily Innovation, and an investor in start-ups that address business problems with artificial intelligence.

Maury is a graduate of Harvard College and Stanford Law School. He is a competitive and recreational sailor, plays guitar and piano, speaks 9 languages, and is a regular speaker and author on technology and innovation.



## APPENDIX: AI/ML USE CASES IN FINANCIAL SERVICES



### AML

ML/AI algorithms are increasingly used in client onboarding procedures essential to AML, assisting with identity verification, client data analysis, biometrics and behavioural patterns. Furthermore, ML/AI techniques are being applied to continuous monitoring of transaction data and analysing customer behaviour patterns contextualised with historical data. These methods allow institutions to distinguish 'normal' from 'abnormal' behaviour for each customer, such as transaction amounts, frequency, and IP addresses.

### ASSET / LIABILITY MANAGEMENT

The adoption and application of artificial intelligence (AI) and machine learning (ML) in ALM processes is no longer a futuristic concept but a present reality. These rapidly evolving technologies hold out the prospect of more accurate and timely risk analysis, forecasting, and hedge responses. Financial institutions are implementing ML solutions to improve predictive capacities and thereby implement more robust and forward-looking asset/liability management (ALM) strategies.

### BASEL III RATIO COMPLIANCE

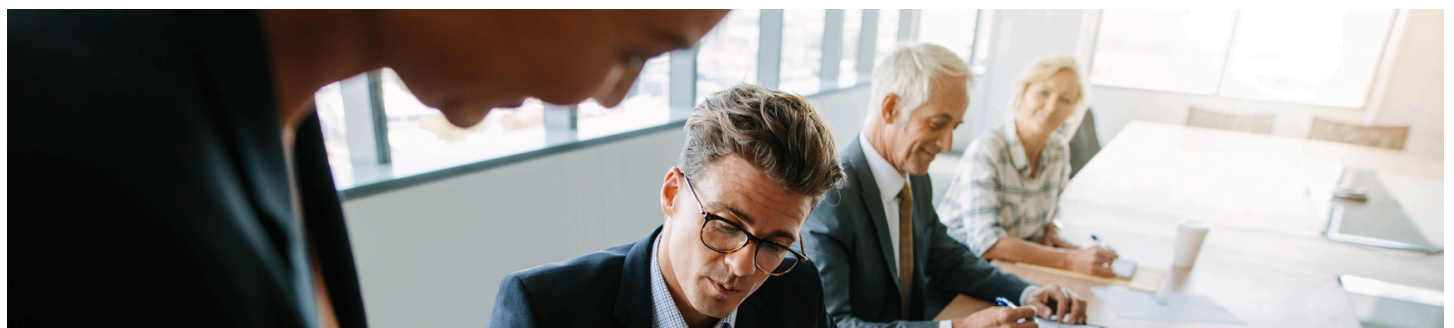
A bank's 'Basel III' ratios (leverage ratio, net stable funding ratio and liquidity ratio) are, in most jurisdictions, an ongoing compliance requirement. However, each of these ratios contains elements that are outside the bank's immediate control. ML applications are increasingly providing institutions with an element of prediction of these ratios and thereby the potential to act pre-emptively.

### CREDIT RISK SCORING

Deriving the inputs for the 'credit pricing triangle' ('p' – default probability, 'R' – expected recovery) used to score credit risk ('S') can often feel like guesswork. ML can be harnessed to optimise the process through analysis of both widespread financial behaviour and historical share and CDS price patterns. This analysis can then be used to assign borrowers to a range of cohort categories, which can be thought of as ML-driven credit scores or ranges.

### CYBERSECURITY

In security, ML continuously learns by analysing data to find patterns so we can better detect malware in encrypted traffic, find insider threats, predict where "bad neighbourhoods" are online to keep people safe when browsing, or protect data in the cloud by uncovering suspicious user behaviour. These systems use ML algorithms to analyse network traffic and detect anomalies, which may indicate a potential intrusion.





## APPENDIX: AI/ML USE CASES IN FINANCIAL SERVICES

### EXECUTION MANAGEMENT SYSTEMS (EMS)

In bond markets, liquidity and sources of price discovery have become scattered around diverse venues, sources and protocols. These include electronic platforms, 'axe lists', and electronic chat networks (such as on Bloomberg and elsewhere) that operate alongside the more traditional RFQ and all-to-all platforms.

The tasks to which AI is being applied have progressed from aggregate position / book analysis to execution management to optimised sourcing of positioning.

### FRAUD DETECTION

By analysing historical fraud patterns alongside continuous monitoring of current transactions, ML/AI models can identify and flag potentially fraudulent activities. Document forgery, behavioural fraud and identity theft detection are areas AI/ML automation is being applied to that previously relied on 'gut-feel'.

### HIGH YIELD AND CREDIT BOND INVESTING

The regulatory overhaul that followed the Global Financial Crisis of 2008, particularly the sweeping changes to bank regulatory capital requirements, has had a dramatic impact on the credit market landscape, with notable changes including:

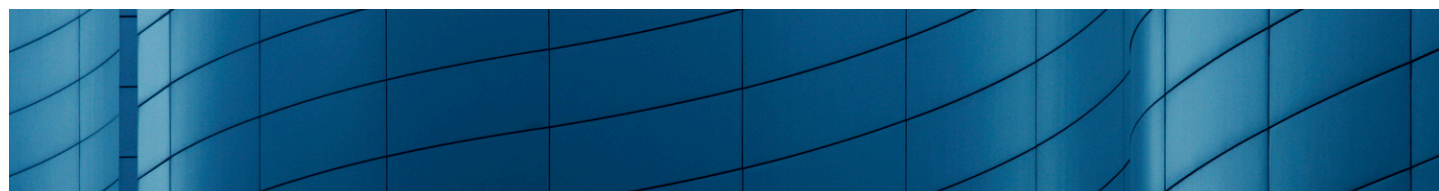
- Markets and Investors no longer rely heavily on credit ratings agencies as they once did.
- Banks and other financial institutions perform their own analysis of the credit risks on their 'balance sheets'.
- The 'shadow banking system' of non-bank lending and borrowing, including 'private debt markets', has seen explosive growth reaching total exposures as high as \$120tn (by some estimates), with innovation in credit pricing techniques apparently an important driver of this growth.
- Increasing application of intelligence from other markets such as the stock, CDS and options markets

ML can be set to look for the events and combinations of factors that are likely to lead to:

- Credit ratings downgrades
- Breaches of debt covenants
- Failure to Pay
- Insolvency

### LIABILITY MANAGEMENT (DEPOSITS)

ML is applied to seek an understanding of patterns, seasonality and trends in depositor behaviour at the micro and macro level. Where financial institutions can understand and thereby predict depositor behaviour based on contexts and market circumstances, they will find themselves better able to pre-empt and profitably manage their deposit portfolios.



## APPENDIX: AI/ML USE CASES IN FINANCIAL SERVICES

### LOAN ADMINISTRATION

Lenders are seeking efficiencies through the application of AI to automation of document processing, risk assessment, and loan approval processes. AI and ML are also predicted to transform the micro-lending sector with personalized solutions. Furthermore, lenders are applying ML and natural language processing (NLP) in furtherance of their understanding and identification of borrower behaviour. A better understanding of borrower behaviour can be expected to reduce default risk.

### MORTGAGE-BACKED SECURITIES (MBS) PREPAYMENTS

Analysts have applied 'neural network' models to pool-level data related to agency MBS. This has been done most notably, and with some success, in the field of mortgage prepayment modelling, where human forecasting has, at best, a 'mixed' track record.

Research has shown that deep learning models hold out the promise of modelling the complex dynamics of mortgage prepayment, capturing patterns and signals that humans may miss. Furthermore, prepayment predictions may not only be more accurate but also delivered with much greater speed.

### OPERATIONAL RISK

The breadth of risk types included under this category, from supply chain disruptions to IT system failures, makes automation compelling. ML can be used to identify and quantify these risk types through analysis of historical operational data. Such histories can provide a context for the analysis of real-time operations as well as the prediction of potential vulnerabilities. These observations can allow for pre-emptive measures.

### PRICING AND SENSITIVITIES OF OPTIONS

ML techniques are being used to detect the likely factors driving options strategy outcomes in a particular market environment. An understanding of these factors, and the correct weightings to apply to them in varied circumstances, may be used to provide an options trader with implied current 'fair values'. These may then be compared to current market values which, to date, are more often driven by the orthodoxy of Black-Scholes and other 'established' pricing techniques, most of which rely on the treatment of only one factor as being 'stochastic'.

### PRICING CONVERTIBLE BONDS

Convertible bond pricing is the result of both rational economic decision-making and more complex, or at least less predictable, human behaviour. Successful analysis of convertible bonds requires an understanding of both, while also recognising that one of these is 'analytically tractable' and the other is not. The application of ML techniques here is driven by the possibility of developing analytical tools supported by sets of probabilities related to outcomes and decisions supported by historical experience.





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## APPENDIX: AI/ML USE CASES IN FINANCIAL SERVICES

### PRIVATE BANKING

ML can be applied to 'learning' and thereby anticipating customer needs. By understanding the behaviour and concerns of similar 'cohorts' in varied past circumstances, private bankers may expect to gain the benefits of efficiencies from 'learned' anticipation of needs and requests in the futures. ML can also be applied to the tailoring of pre-emptive advice.

### RELATIVE VALUE BOND TRADING

Searching for profit in pricing anomalies, ML tools can help fixed-income risk-takers to better understand the prospects for relative value 'anomaly' trades.

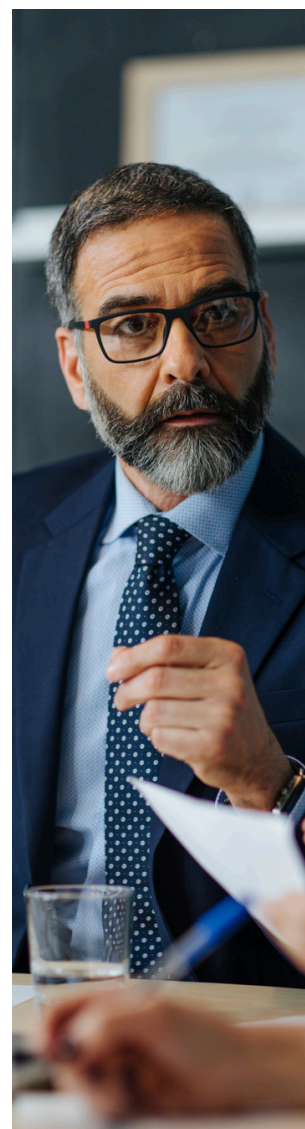
- Relative value bond trades are typically reliant on repo financing, the rates for which can be unpredictable.
- As some yield curve shapes invite anomaly or arbitrage trades, ML can be applied to finding realistically profitable examples of these.

### STEALTHY EXECUTION

Fund managers will often need to devise plans for trade execution, especially in the context of trades which are large compared to the liquidity routinely available in the market. AI-driven execution techniques include the 'stealthy' gradual execution of such transactions, tailored to the intra-day timings of best liquidity. Given that these timings are, in the simplest interpretation, hard to predict, it has been found that ML techniques can usefully be applied to finding reasonable 'opportunity windows'.

### STOCK SELECTION / 'SCREENING'

Unlike 'orthodox' stock screening where the selection criteria ('factors') are selected by the user, ML-based screening strives for optimal decision-making through extensive data analysis to determine the optimal weightings to apply to different factors in a particular environment. Even the broadest factors such as 'value', 'quality' and 'momentum' have in the past been widely used without reference to their importance relative to one another.



## TRUST THE EXPERTS

*We are a global leader in knowledge solutions, serving top corporate and public sector organisations worldwide for over 35 years. Our acclaimed financial education offering can be tailored to your needs, empowering and motivating your employees to drive engagement and win business.*

For inquiries or to learn how our AI Essentials in Banking and Finance Workshops can benefit your organisation, please contact us at:

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