

LONDON

THE 3RD MACHINE LEARNING & AI IN QUANTITATIVE FINANCE CONFERENCE

20TH - 22ND MARCH 2019

SPEAKERS

Dr Mandie Quartly, Global Tech Lead, **IBM POWER Ecosystem Development**
Georgios Papaioannou: Trading Strategist, **Bank of America Merrill Lynch**
Alison B. Lowndes: Artificial Intelligence DevRel | EMEA, **NVIDIA**
Miquel Noguer Alonso: Co-Founder, **Artificial Intelligence Finance Institute – AIFI**
Harsh Prasad: Vice President, **Morgan Stanley**
Artur Sepp: Head of Research, **Quantica Capital AG**
Alexei Kondratyev: Managing Director, Head of Data Analytics, **Standard Chartered Bank**
William A. McGhee: Global Head of Quantitative Analytics, **NatWest Markets**
Youssef Elouerkhaoui, Managing Director, Head of Credit Derivatives, **CITI**
Tomaso Aste: Professor of Complexity Science, **University College London**
Claudi Ruiz Camps: Machine Learning Specialist, **ABN AMRO Clearing Bank N.V.**
Inder Singh: Vice President, **CitiBank**
Ignacio Ruiz: Founder & CEO, **MoCaX Intelligence**
Saeed Amen: Founder, **Cuemacro**
Jan Novotny: Front Office Quant
Grant Fuller: Co-Founder, **Irithmics**
Arun Verma: Quantitative Research Solutions, **Bloomberg, LP**

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CONFERENCE OVERVIEW

LOCATION:

TBA

WEDNESDAY 20TH MARCH:

PRE-CONFERENCE WORKSHOP DAY

From Quantitative Finance to Artificial Finance Workshop

by Miquel Noguer Alonso: Co-Founder, Artificial Intelligence Finance Institute – AIFI

THURSDAY 21ST MARCH:

MAIN CONFERENCE, DAY ONE

The 3rd Machine Learning & AI In Quantitative Finance

FRIDAY 22ND MARCH:

MAIN CONFERENCE, DAY TWO

The 3rd Machine Learning & AI In Quantitative Finance

CONFERENCE BOOKINGS: DISCOUNT STRUCTURE:

- **Super Early Bird Discount: 25% until 8th February**
- Early Bird Discount: 10% until 1st March
- Main Conference + Workshop (£150 Discount)
- SPECIAL OFFER: When 2 colleagues attend the 3rd goes free!
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CPD CERTIFICATION



You will be able to receive CPD points for attending this event. Number of points TBD.

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IMPORTANT NOTES:

Conference presentation files on USB memory sticks will be provided on arrival. The conference files will also be made available for download via a password protected website before the event. Please print out each presentation if you wish to have hard copies before the conference and bring them with you.

Also, Wi-Fi access will be available at the venue to view presentations on laptops and mobile devices.

PRE-CONFERENCE WORKSHOP: WEDNESDAY 20TH MARCH

DAY SCHEDULE: 09:00 – 17:30

BREAK: 10:30 – 11:00 / LUNCH: 12:30 – 13:30 / BREAK: 15:15 – 15:30

FROM QUANTITATIVE FINANCE TO ARTIFICIAL FINANCE WORKSHOP BY MIQUEL NOGUER ALONSO: CO-FOUNDER, ARTIFICIAL INTELLIGENCE FINANCE INSTITUTE – AIFI

COURSE OUTLINE:

In this new workshop we will help the delegates to successfully transition from traditional quantitative finance to artificial finance. We will explore the mathematics, the rationale and code of the new machine learning and artificial intelligence models in finance.

COURSE TUTOR:



Miquel Noguer Alonso is a financial markets practitioner with more than 20 years of experience in asset management, he is currently working for UBS AG (Switzerland). He worked as a CFO and CIO for a European bank from 2000 to 2006. He started his career at KPMG.

He is Adjunct Assistant Professor at Columbia University teaching Asset Allocation, Big Data in Finance, Fintech and Hedge Fund Professor at ESADE. He received an MBA and a Degree in business administration and economics in ESADE in 1993. In 2010 he earned a PhD in quantitative finance with a Summa Cum Laude distinction (UNED - Madrid Spain). He also holds the Certified European Financial Analyst diploma (2000).

His research interests range from asset allocation, big data to algorithmic trading and fintech. His academic collaborations include a visiting scholarship in Columbia University in 2013 in the Finance and Economics Department, in Fribourg University in 2010 in the mathematics department, and presentations in Indiana University, ESADE, London Business School, CAIA Association, AFI and several industry seminars.

MAIN CONFERENCE DAY ONE: THURSDAY 21ST MARCH

08:00 – 09:00 REGISTRATION AND MORNING WELCOME COFFEE

09:00 – 09:45 OPENING TALK: MACHINE LEARNING IN FINANCE

- Use cases
 - Risk
 - Trade strategy
 - Quant Modelling
- Behavioural Finance
- Challenges and recent progress
- Ethics, Institutions and Regulations

by **Harsh Prasad**: Vice President, **Morgan Stanley**

09:45 – 10:45 MACHINE LEARNING, AI & QUANTUM COMPUTING IN QUANTITATIVE FINANCE PANEL

MODERATOR:

- **Harsh Prasad**: Vice President, **Morgan Stanley**

PANELLISTS:

- **Alexei Kondratyev**: Managing Director, Head of Data Analytics, **Standard Chartered Bank**
- **Christoph Burgard**: Head of Risk Analytics For Global Markets, **Bank of America Merrill Lynch**
- **Dr Mandie Quartly**: Global Tech Lead, **IBM POWER Ecosystem Development**
- **Claudi Ruiz Camps**: Machine Learning Specialist, **ABN AMRO Clearing Bank**
- **Alison B. Lowndes**: Artificial Intelligence DevRel | EMEA, **NVIDIA**
- **Artur Sepp**: Head of Research, **Quantica Capital AG**

TOPICS:

- What is the current state of utilisation of machine learning in finance?
- What are the distinct features of machine learning problems in finance compared to other industries?
- What are the best practices to overcome these difficulties?
- What's the evolution of a team using machine learning in terms of day to day operations?
- What is a typical front office 'Quant' skillset going to look like in three to five years time?
- How do we deal with model risk in machine learning case?
- How is machine learning expected to be regulated?
- What applications can you list among its successes?
- How much value is it adding over and above the "classical" techniques such as linear regression, convex optimisation, etc.?
- Do you see high-performance computing (HPC) as a major enabler of machine learning?
- What advances in HPC have caused the most progress?
- What do you see as the most important machine learning techniques for the future?
- What are the main pitfalls of using Machine Learning currently in trading strategies?
- What new insights can Machine Learning offer into the analysis of financial time series?
- Discuss the potential of Deep Learning in algorithmic trading?
- Do you think machine learning and HPC will transform finance 5-10 years from now?
- If so, how do you envisage this transformation?
- Can you anticipate any pitfalls that we should watch out for.
- Discuss quantum computing in quant finance:
 - Breakthroughs
 - Applications
 - Future uses

10:45 – 11:15 MORNING BREAK AND NETWORKING OPPORTUNITIES

MAIN CONFERENCE DAY ONE: THURSDAY 21ST MARCH

PRICING & MODELLING TECHNIQUES STREAM

STREAM CHAIR:
Harsh Prasad:
Vice President,
Morgan Stanley

11:15 – 12:00 DERIVATIVES PRICING WITH A MACHINE LEARNING APPROACH

- Motivation – Non-Parametric Option Pricing
- Review of Machine Learning Techniques
- A Mathematical Introduction to Neural Networks
- Universal Representation Theorem
- Deep Pricing Learning Theory
- Practical Implementation
- Numerical Applications

Presenter: Youssef Elouerkhaoui, Managing Director, Head of Credit Derivatives, **CITI**

12:00 – 12:45 DERIVATIVES MODELLING AND MACHINE LEARNING

Presenter: William A. McGhee: Global Head of Quantitative Analytics, **NatWest Markets**

12:45 – 14:00 LUNCH

HARDWARE & GPUS STREAM

STREAM CHAIR:
Alexei Kondratyev:
Managing Director, Head of Data Analytics,
Standard Chartered Bank

11:15 – 12:00 WHO CARES ABOUT THE PLATFORM?? (SPOILER ALERT - YOU SHOULD)

What's the point in a super accurate predictions – if they are a day too late? Or so-so insights – because you've not had time to train using all your data? Wouldn't it have been good to try some more potential models – to check you've got the best option?

Your choice of platform can have a large impact on the amount of data you can process and the range and accuracy of models you train. Come and hear about your options on the POWER platform – acceleration using GPUs / FPGA, optimised open source frameworks, wide ranging software ecosystem – and check you aren't missing out on something which could increase your productivity and accuracy.

Presenter: Dr Mandie Quartly: Global Tech Lead, **IBM POWER Ecosystem Development**

12:00 – 12:45 FUELLING THE ARTIFICIAL INTELLIGENCE REVOLUTION WITH GAMING

Abstract:

Artificial Intelligence is impacting all areas of society, from healthcare and transportation to smart cities and energy. AI won't be an industry, it will be part of every industry. NVIDIA invests both in internal research and platform development to enable its diverse customer base, across gaming, VR, AR, AI, robotics, graphics, rendering, visualisation, HPC, healthcare & more. Alison's talk will introduce the hardware and software platform at the heart of this Intelligent Industrial Revolution: NVIDIA GPU Computing. She'll provide insights into how academia, enterprise and startups are applying AI, as well as offer a glimpse into state-of-the-art research from world-wide labs & internally at NVIDIA, demoing, for example, the combination of robotics with VR and AI in an end-to-end simulator to train intelligent machines. Beginners might like to try our free online 40-minute "Electives" using GPU's in the cloud: www.nvidia.co.uk/dli

Presenter: Alison B. Lowndes: Artificial Intelligence DevRel | EMEA, **NVIDIA**

12:45 – 14:00 LUNCH

MAIN CONFERENCE DAY ONE: THURSDAY 21ST MARCH

PRICING & MODELLING TECHNIQUES STREAM

14:00 – 14:45 INHERENT STATES OF MARKETS

Abstract:

Prices in markets fluctuate stochastically in a collective motion. At every instant the state of a market can be associated with the set of prices and their changes with respect to the previous observation. The time evolution of these variables can be modelled as adapting around a number of inherent fundamental states. The identification of such inherent states can provide important new tools for risk management and forecasting.

I will show how information filtering networks [1-4] built from dependency measures, both linear and non-linear, can be used to identify these inherent market states. I'll describe how such states can be used to construct predictive probabilistic models [5,6].

Bibliographic References available [online](#)

Presenter: Tomaso Aste: Professor of Complexity Science, **University College London**

HARDWARE & GPUS STREAM

14:00 – 14:45 UNSUPERVISED LEARNING FOR INFORMATION COMPRESSION TO IMPROVE PERFORMANCE AND REDUCE TRAINING TIME AND HARDWARE REQUIREMENTS OF MULTI-TASK LEARNING

ABN AMRO Clearing Bank works with considerably large amounts of data every day, and designs and implements in production deep learning models together with hyper-parameter optimization models to approach some of their business cases. Our talk will be focused on our main model with the goal of projecting the raw data onto a meaningful lower-dimensional space. This projection is beneficial for our other models, which have different tasks, in three ways:

1. The hyper-parameter space of the other models can be modeled more rapidly. The other models no longer need to learn first order representations since those are given by the main model, which means that their training time is reduced.
2. The other models can be smaller now as well, so less GPU space is required.
3. Better performance and less tendency to overfit. The representations learnt by the main model (unsupervised learning) are, in principle, richer than if they would have to be learnt for specific tasks (supervised learning).

Presenter: Claudi Ruiz Camps: Machine Learning Specialist, **ABN AMRO Clearing Bank**

MAIN CONFERENCE DAY ONE: THURSDAY 21ST MARCH

PRICING & MODELLING TECHNIQUES STREAM

14:45 – 15:30 IDENTIFICATION AND FORECAST OF MARKET REGIMES USING MACHINE LEARNING

- Applying Hidden Markov Models (HMM) to identify market regimes (bull/bear/range etc)
- Specification and estimation of HMMs using Unsupervised Learning
- Forecasting of likelihoods of regimes at different horizons
- Applications to systematic trading strategies

Presenter: Artur Sepp: Head of Research, **Quantica Capital AG**

15:45 – 16:00 AFTERNOON BREAK AND NETWORKING OPPORTUNITIES

16:00 – 16:45 TOPIC TO BE CONFIRMED

Presenter: Ignacio Ruiz: Founder & CEO, **MoCaX Intelligence**

16:45 – 17:30 MODEL CALIBRATION WITH MACHINE LEARNING

Presenter: To be confirmed

QUANTUM COMPUTING STREAM

14:45 – 15:30 QUANTUM MACHINE LEARNING

- Training strong classifiers with quantum annealing
- Quantum Boltzmann Machine

Presenter: Alexei Kondratyev: Managing Director, Head of Data Analytics, **Standard Chartered Bank**

15:45 – 16:00 AFTERNOON BREAK AND NETWORKING OPPORTUNITIES

16:00 – 16:45 TOPIC TO BE CONFIRMED

Presenter: To be confirmed

16:45 – 17:30 SECOND QUANTIZATION OF BANKS (TO BE CONFIRMED)

Presenter: Christoph Burgard: Head of Risk Analytics For Global Markets, **Bank of America Merrill Lynch**

MAIN CONFERENCE DAY TWO: FRIDAY 22ND MARCH

08:30 – 09:00 MORNING WELCOME COFFEE

09:00 – 09:45 OPENING TALK: MACHINE LEARNING FOR TRADE STRATEGIES

- Finding alpha – value investing
- Factor investment
- Reinforcement Learning
- AI for ESG
- Sentiment Analysis

by **Harsh Prasad**: Vice President, **Morgan Stanley**

09:45 – 10:30 MACHINE LEARNING ENHANCED TRADING

Presenter: **Georgios Papaioannou**: Trading Strategist, **Bank of America Merrill Lynch**

10:30 – 11:00 MORNING BREAK AND NETWORKING OPPORTUNITIES

MAIN CONFERENCE DAY TWO: FRIDAY 22ND MARCH

TRADING / INVESTMENT STRATEGIES STREAM

STREAM CHAIR:
To be confirmed

11:00 – 11:45 MACHINE LEARNING HEDGING

- Dos-Don'ts of Strategies for Accurate Prediction

Presenter: Inder Singh: Vice President, **CitiBank**

11:45 – 12:30 DIGITAL TRANSFORMATION TO OPTIMISE THE TRADING FLOOR: AUTOMATIC BOOKING AND SMART ALGORITHMS

- Unpack the reality of AI uses on the trading floor
- Explore machine learning models used to generate electronic trading signals
- Examine how AI is already helping traders perform better in some of the leading banks
- Supporting traders with automated systems freeing human talent for more complex tasks

Presenter: Jan Novotny: Front Office Quant

12:30 – 13:30 LUNCH

DEEP LEARNING STREAM

STREAM CHAIR:
Paul Bilokon:

Founder, CEO, **Thalesians** &
Senior Quantitative Consultant, **BNP Paribas**

11:00 – 11:45 DEEP LEARNING IN FINANCE: PREDICTION OF STOCK RETURN WITH LONG SHORT-TERM MEMORY NETWORKS

Presenter: Miquel Noguer Alonso: Co-Founder, **Artificial Intelligence Finance Institute – AIFI**

11:45 – 12:30 FROM ARTIFICIAL INTELLIGENCE TO MACHINE LEARNING, FROM LOGIC TO PROBABILITY

Applications of Artificial Intelligence (AI) and Machine Learning (ML) are rapidly gaining steam in quantitative finance. These terms are often used interchangeably. However, the pioneering work on AI by participants of the Dartmouth Summer Research Project — Marvin Minsky, Nathaniel Rochester, and Claude Shannon — was more symbolic than numerical, and often used the language of logic. Recent advances in ML — especially Deep Learning — are more numerical than symbolic, and often use the language of probability. In this talk we shall show how to connect these two worldviews.

Presenter: Paul Bilokon: Founder, CEO, **Thalesians** &
Senior Quantitative Consultant, **BNP Paribas**

12:30 – 13:30 LUNCH

MAIN CONFERENCE DAY TWO: FRIDAY 22ND MARCH

BIG DATA STREAM

13:30 – 14:15 BIG DATA AND MACHINE READABLE NEWS TO TRADE MARKETS

We give a brief overview of using Big Data and alternative data in financial markets, as well as some use cases for machine learning. We present a case study, examining how machine readable news can be used to trade FX systematically. We also show how news can help understand the market volatility around FOMC and ECB meetings.

Presenter: Saeed Amen: Founder, Cuemacro

14:15 – 15:00 QUANTITATIVE FACTOR INVESTING USING ALTERNATIVE DATA AND MACHINE LEARNING

Abstract:

To gain an edge in the markets quantitative hedge fund managers require automated processing to quickly extract actionable information from unstructured and increasingly non-traditional sources of data. The nature of these "alternative data" sources presents challenges that are comfortably addressed through machine learning techniques. We illustrate use of AI and ML techniques that help extract derived signals that have significant alpha or risk premium and lead to profitable trading strategies.

This session will cover the following topics:

- The broad application of machine learning in finance
- Extracting sentiment from textual data such as news stories and social media content using machine learning algorithms
- Construction of scoring models and factors from complex data sets such as supply chain graph, options (implied volatility skew, term structure) and ESG (Environmental, Social and Governance)
- Robust portfolio construction using multi-factor models by blending in factors derived from alternative data with the traditional factors such as fama-french five-factor model.

Presenter: Arun Verma: Quantitative Research Solutions, Bloomberg, LP

DEEP LEARNING STREAM

13:30 – 14:15 TOPIC TO BE CONFIRMED

Presenter: To be confirmed

14:15 – 15:00 DEEP LEARNING OF INVESTOR BEHAVIOUR AND RISK APPETITE

Presenter: Grant Fuller: Co-Founder, Irithmics

15:00 – 15:15 AFTERNOON BREAK

16:00 – 16:45 CLOSING TALK: TOPIC TO BE CONFIRMED

Presenter: To be confirmed

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The Thalesians are a think tank of dedicated professionals with an interest in quantitative finance, economics, mathematics, physics and computer science, not necessarily in that order.

www.thalesians.com/finance/index.php/Main_Page

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- Start Date: Tuesday 23rd April 2019
- Super Early Bird: 25% Discount until 22nd February 2019

Quantitative finance is moving into a new era. Traditional quant skills are no longer adequate to deal with the latest challenges in finance. The Machine Learning Institute Certificate offers candidates the chance to upgrade their skill set by combining academic rigour with practical industry insight.

The Machine Learning Institute Certificate in Finance (MLI) is a comprehensive six-month part-time course, with weekly live lectures in London or globally online. The MLI is comprised of 2 levels, 6 modules, 24 lecture weeks, lab assignments, a practical final project and a final sit down examination using our global network of examination centres.

This course has been designed to empower individuals who work in or are seeking a career in machine learning in finance. Throughout our unique MLI programme, candidates work with hands-on assignments designed to illustrate the algorithms studied and to experience first-hand the practical challenges involved in the design and successful implementation of machine learning models. The MLI is a career-enhancing professional qualification, that can be taken worldwide.

mlinstitute.org



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FLIGHT DETAILS:

All delegates flying into London on the morning of the event are reminded that they should arrive 30 minutes before the workshop starts for registration. The hotels West End location is approximately 1 hour from all 3 main London airports, Heathrow, Gatwick and City. Returning flights should equally allow for the events finishing time.

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DISCOUNT STRUCTURE:

The discount is available on any day permutation, and can be combined across delegates within the same company (only at the time of booking and not retrospectively).

REGISTRATION:
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