

LEVEL39, CANARY WHARF, LONDON

THE 2ND QUANTITATIVE FINANCE CONFERENCE (SPRING EDITION)

17TH - 19TH MAY 2023

SPEAKERS

Adolfo Montoro: Director, Global Market Risk Analytics, Bank of America

Matthias Arnsdorf: Global Head of Counterparty Credit Risk Quantitative Research, J.P. Morgan

Blanka Horvath: Associate Professor in Mathematical and Computational Finance,
University of Oxford and Researcher, The Alan Turing Institute

Andrei Lyashenko: Head of Market Risk and Pricing Models, Quantitative Risk Management (QRM), Inc.

Peter Hafez: Chief Data Scientist, RavenPack

Gordon Lee: Head of XVA and Derivatives Quantitative Analytics, BNY Mellon

Youssef Elouerkhaoui: Managing Director, Global Head of Markets Quantitative Analysis, Citi

Laura Ballotta: Prof. of Mathematical Finance, Bayes Business School (formerly Cass)

Andrew Green: Managing Director and Lead GFI Quant, Scotiabank

Alexander Sokol: Executive Chairman and Head of Quant Research, Compatibl

Fabrizio Anuso: Traded Risk Measurement, PRA, Bank of England

Marco Bianchetti: Head of Internal Model Market Risk, Intesa Sanpaolo

Svetlana Borovkova: Head of Quantitative Modelling, Probability & Partners and Associate Professor,
Vrije Universiteit Amsterdam

Chris Kenyon: Director: Head of XVA Quant Modelling, MUFG Securities EMEA plc

Manola Santilli: Market Risk Manager, Intesa Sanpaolo

Jodie Humphreys: Director, Bank of America

Robert Dargavel Smith: Lead Data Scientist, Clarity AI

Saeed Amen: Turnleaf Analytics / Cuemacro / Visiting Lecturer at QMUL

Elias Daboussi: Quantitative Analyst, Bank of America Merrill Lynch

Rita Laura D'Ecclesia Professor: Università degli Studi di Roma "La Sapienza"

Jörg Kienitz: Quantitative Finance and Machine Learning (Acadiasoft), Partner (Quaternion), Adjunct
Prof (UCT), Assistant Prof (BUW)

Andrea Macrina: Professor of Mathematics, University College London (UCL)

SPECIAL OFFER:

WHEN 2 COLLEAGUES ATTEND
THE 3RD GOES FREE!



EVENT SPONSORS



CONFERENCE OVERVIEW

WBS Training are delighted to announce that in May 2023 we are once again hosting the 2nd running of our new exciting two streamed event, the Quantitative Finance Conference, Spring Edition in-person in London.

VENUE:

Level39, One Canada Square, Canary Wharf, London, E14 5AB

Website: www.level39.co

WEDNESDAY 17TH MAY: PRE-CONFERENCE WORKSHOP DAY: INTRODUCTION TO AUTOENCODERS AND AUTOENCODER MARKET MODELS (AEMM)

by Alexander Sokol: Executive Chairman and Head of Quant Research, CompatibL

This workshop is complimentary to all conference attendees, numbers limited so first come first served.

THURSDAY 18TH MAY: MAIN CONFERENCE, DAY ONE

FRIDAY 19TH MAY: MAIN CONFERENCE, DAY TWO

CONFERENCE BOOKINGS - DISCOUNT STRUCTURE:

- Super Early Bird Discount: 30% until 24th February 2023
- Early Bird Discount: 25% until 31st March 2023
- Early Bird Discount: 15% until 28th April 2023
- SPECIAL OFFER: When 2 colleagues attend the 3rd goes free!
- 70% Academic Discount (FULL-TIME Students Only)

CPD CERTIFICATION



You will be able to receive CPD points for attending this event (number of points to be confirmed).

The CPD Certification Service was established in 1996 as the independent CPD accreditation institution operating across industry sectors to complement the CPD policies of professional and academic bodies. The CPD Certification Service provides recognised independent CPD accreditation compatible with global CPD principles.

www.cpduk.co.uk

IMPORTANT NOTES:

The Main Conference presentation files will 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. Wi-Fi access will be available at the conference venue to view presentations on laptops and mobile devices.

Some presentation slides may be restricted due to company compliance rules.

WORKSHOP DAY - INTRODUCTION TO AUTOENCODERS AND AUTOENCODER MARKET MODELS (AEMM): WEDNESDAY 17TH MAY

BY ALEXANDER SOKOL: EXECUTIVE CHAIRMAN AND HEAD OF QUANT RESEARCH, COMPATIBL

13:30 – 15:00 SESSION ONE: MACHINE LEARNING ARCHITECTURE (VAE, VEGD)

During this session we will train autoencoders to optimally represent the yield curve using one, two, or three model state variables, and compare our results to implicit and explicit factor representations used by popular classical models.

- Introduction to Variational Autoencoders (VAE)
 - The roles of encoder and decoder, latent space
 - Deliberately introducing uncertainty in reconstruction
 - Loss function and optimization loop
 - Conditional VAE (CVAE) vs. unconditional VAE
 - Reconstruction with VAE
 - Generation with VAE
- VAE for the yield curve
 - Training to single currency dataset
 - Training to multi-currency dataset
 - Few-shot learning with multi-currency dataset
- Hands-on examples with Python
 - Swap curve VAE trained to single currency dataset
 - Swap curve VAE trained multi-currency dataset
 - Few-shot VAE for currencies with short time series

15:00 – 15:30 COFFEE BREAK

15:30 – 17:00 SESSION TWO: APPLICATION TO INTEREST RATE MODELS

For five popular model families (three in Q-measure and two in P-measure), we will review a representative classical model in each family and then build its machine learning counterpart.

- Introduction to Autoencoder Market Models (AEMM)
 - Dimension Reduction as Compression
 - Combining VAE with stochastic process in latent space
 - Deterministic and stochastic volatility AEMM
- Models in Q-Measure
 - One Factor Short Rate Models
 - One Factor Hull-White Model (classical)
 - One Factor Short Rate AEMM (ML)
 - Two Factor Short Rate Models
 - Two Factor Hull-White Model (classical)
 - Two Factor Short Rate AEMM (ML)
 - Forward Rate Models
 - HJM, LMM and SABR-LMM Models (classical)
 - AFNS and FHJM Models (classical)
- Models in P-Measure
 - Forecasting Models
 - Dynamic Nelson-Siegel Model (classical)
 - Forecasting AEMM (ML)
 - Stochastic Models
 - CKLS Model (classical)
 - Stochastic AEMM (ML)
- Hands-on examples with Python
 - Compare curve shapes generated by classical Q-measure models and AEMM
 - Compare interest rate forecasting by classical P-measure models and AEMM

17:00 – 17:30 Q&A

MAIN CONFERENCE DAY ONE: THURSDAY 18TH MAY

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

AI & MACHINE LEARNING STREAM

LATEST QUANTITATIVE MODELLING & REGULATIONS STREAM

09:00 – 09:45

GENERATIVE DEEP LEARNING IN QUANT FINANCE

Presenter: Andrew Green: Managing Director and Lead GFI Quant, Scotiabank

09:00 – 09:45

LATEST FRTB UPDATE

Presenter: Adolfo Montoro: Director, Global Market Risk Analytics, Bank of America

09:45 – 10:30

AUTOENCODER MARKET MODELS FOR INTEREST RATES

Presenter: Alexander Sokol: Executive Chairman and Head of Quant Research, Compatibl

09:45 – 10:30

COUNTING JUMPS: AN ANALYSIS OF DIFFERENT WAITING TIME DISTRIBUTIONS. APPLICATIONS IN FINANCE

Presenter: Laura Ballotta: Prof. of Mathematical Finance, Bayes Business School (formerly Cass)

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

11:00 – 11:45

DERIVATIVES PRICING WITH SOBOLEV DEEP LEARNING

- Motivation: Fast and Stable Deep Learning
- An Introduction to Sobolev Deep Learning Universal Representation
- Theorem on Sobolev Spaces
- Practical Numerical Implementation Applications

Presenter: Youssef Elouerkhaoui: Managing Director, Global Head of Markets Quantitative Analysis, Citi

11:00 – 11:45

LEVERAGED WRONG-WAY RISK

We introduce a simple model for the credit exposure to leveraged and collateralized counter-parties. Wrong-way risk is captured by linking the counter-party default probability directly to changes in the portfolio value. This applies e.g. to leveraged firms such as hedge funds where large collateral calls can be the driver of default. We show that our model is able to reproduce the large losses observed in recent events. These losses were unexpected based on typical exposure models which neglect the relatedness of large market moves and the viability of the counter-party. Our model is intuitive to parameterize and straightforward to implement and thus provides a useful tool for assessing the credit risk inherent in leveraged portfolios.

Presenter: Matthias Arnsdorf: Global head of Counterparty Credit Risk Quantitative Research, J.P. Morgan

11:45 – 12:30

MODEL-AGNOSTIC PRICING OF EXOTIC DERIVATIVES USING SIGNATURES

Presenters:

Blanka Horvath: Associate Professor in Mathematical and Computational Finance, University of Oxford and Researcher, The Alan Turing Institute & Gordon Lee: Head of XVA and Derivatives Quantitative Analytics, BNY Mellon

11:45 – 12:30

MODELING YIELD CURVES WITH FACTOR HJM

We present a new interest rate modeling framework based on the factor modeling approach widely used to model yield curves in real-world applications. The new modeling framework is very attractive as it combines the simplicity, intuitiveness, and computational efficiency of the factor modeling approach with the rigor of no-arbitrage term structure pricing models.

Presenter: Andrei Lyashenko: Head of Market Risk and Pricing Models, Quantitative Risk Management (QRM), Inc.

MAIN CONFERENCE DAY ONE: THURSDAY 18TH MAY

AI & MACHINE LEARNING STREAM

LATEST QUANTITATIVE MODELLING & REGULATIONS STREAM

12:30 – 13:30 LUNCH

13:30 – 14:15

THE FUTURE OF ASSET ALLOCATION: EXPLORING THE POTENTIAL OF LANGUAGE AI

Abstract: In this presentation, we'll explore the potential of language AI in asset allocation. We'll discuss how real-time news analytics can navigate the business cycles and aid in asset-class rotation, and how sentiment analysis can inform sector selection strategies, with the added layer of corporate controversy filters. Understanding the capabilities of language AI in asset allocation can equip us to make better-informed investment decisions and augment market timing abilities.

**Presenter: Peter Hafez: Chief Data Scientist,
RavenPack**

13:30 – 14:15

JOINT MODELLING OF CMS RATES IN A RISK-FREE RATE FRAMEWORK

**Presenter: Elias Daboussi: Quantitative Analyst,
Bank of America Merrill Lynch**

14:15 – 15:00

DISTRIBUTIONAL IMPUTATION FOR VOLATILITY SURFACES USING VARIATIONAL AUTOENCODERS

Abstract: We review the usage of variational autoencoders (VAEs) for imputing FX volatility surfaces, discuss common misconceptions and misuses of VAEs, the importance of architecture, and finally how to use VAEs for imputing with uncertainties.

**Presenter: Achintya Gopal: Machine Learning Quant Researcher,
Bloomberg LP**

14:15 – 15:00

EFFICIENT VALUATION OF MID-CURVE SWAPTIONS

Abstract: We consider a model for midcurves that respects relevant swaption skews, allows a flexible correlation structure and accounts for the stochasticity of annuities. Furthermore, we present a method to evaluate the model efficiently.

**Presenter: Wen Jiang: Executive Director, Head of Structured
Rates Quantitative Research, Nomura**

15:00 – 15:30 AFTERNOON BREAK AND NETWORKING OPPORTUNITIES

15:30 – 16:15

SEMI-ANALYTIC CONDITIONAL EXPECTATIONS AND APPLICATIONS

We introduce a data driven and model free approach for computing conditional expectations. The new method combines Gaussian Mean Mixture models with classic analytic techniques based on the properties of the Gaussian distribution. As applications we consider

- Proxy hedges
- Bermudan options
- Stochastic Local Volatility
- Forward Backward Stochastic Differential Equations

**Presenter: Jörg Kienitz: Quantitative Finance and Machine
Learning (Acadiasoft), Partner (Quaternion),**

15:30 – 16:15

ANALYTIC RFR OPTION PRICING WITH SMILE AND SKEW

Presenter: Colin Turfus: Quantitative Analyst, Deutsche Bank

MAIN CONFERENCE DAY ONE: THURSDAY 18TH MAY

AI & MACHINE LEARNING STREAM

LATEST QUANTITATIVE MODELLING & REGULATIONS STREAM

16:15 – 17:00

CHARACTERISTICS OF AUTOMATED MARKET MAKERS (AMMS) IN DEFI

Presenter: Katia Babbar: University of Oxford,
Academic Visitor & Immersive Finance, Co-Founder

16:15 – 17:00

COLLATERALISED EXPOSURE MODELLING: BRIDGING THE GAP RISK

Presenter: Fabrizio Anfuso: Traded Risk Measurement, PRA,
Bank of England

17:00 – 18:00

MACHINE LEARNING MODELS PANEL – PRESENT AND FUTURE

ML models for valuation, XVA, and risk

- Is ML a new numerical method, a new way to specify the model, or a new paradigm?
- Does ML training replace model selection, or model calibration?
- How do we know if we are truly learning or just interpolating?
- Is there enough historical data to train ML models?
- Trusted ML in quant finance – will the regulators accept ML model?

Natural language processing (NLP) and sentiment analysis in quant finance

- Is there usable sentiment data in news? Social media? Company filings?
- How will sentiment be used for alpha generation? Valuation and XVA? Risk?
- What matters more in recognizing sentiment – Speed? Quality? Stability?

ML and investing

- Will ML revolutionize fundamental analysis?
- Will ML enable the use of alternative data in new ways?
- Does ML have a role in integrating ESG in the investment process?

Moderator:

- Alexander Sokol: Executive Chairman and Head of Quant Research, CompatibL

Panellists:

- Gordon Lee: Head of XVA and Derivatives Quantitative Analytics, BNY Mellon
- Marco Bianchetti: Head of Internal Model Market Risk, Intesa Sanpaolo
- Blanka Horvath: Associate Professor in Mathematical and Computational Finance, University of Oxford and Researcher, The Alan Turing Institute
- Jörg Kienitz: Quantitative Finance and Machine Learning (Acadiasoft), Partner (Quaternion), Adjunct Prof (UCT), Assistant Prof (BUW)

18:00 – 19:30 DRINKS RECEPTION

MAIN CONFERENCE DAY TWO: FRIDAY 19TH MAY

08:30 – 09:00 MORNING WELCOME COFFEE

ALT DATA & VOLITILITY STREAM

09:00 – 09:45

LEARNING MARKET DATA ANOMALIES

- Why anomaly data detection is crucial for market risk management
- Techniques: from simple statistics to isolation forest and (variational) autoencoders
- Comparing and reporting outputs
- Operational framework

Abstract:

Everyday market risk managers are required to check a huge amount of market data, scenarios and positions used to compute market risk measures. Some data may present anomalous values because of a wide range of reasons, e.g. bugs in the related production processes, sudden and severe market movements, etc. Hence, it is crucial to integrate the daily data quality process with automatic and statistically robust tools able to smartly analyse all the available information and identify possible anomalies (the "needles in the haystack"). To this purpose we combined both simple statistics and machine learning algorithms to build an anomaly detection framework which is general enough to cover different asset classes and data dimensionalities (multiple curves, surfaces and cubes). The results are encouraging but they strongly depend on assumptions and parameters, keeping crucial the human supervision.

**Presenters: Marco Bianchetti: Head of Internal Model Market Risk, Intesa Sanpaolo,
Manola Santilli: Market Risk Analyst, Intesa Sanpaolo &
Marco Scaringi: Quantitative Analyst, Risk Management, Intesa Sanpaolo**

ESG AND CLIMATE RISK QUANT MODELLING TECHNIQUES STREAM

09:00 – 09:45

LEVERAGING LARGE LANGUAGE MODELS TO EXTRACT ESG INFORMATION IN PRACTICE

Presenter: Robert Dargavel Smith: Lead Data Scientist, Clarity AI

09:45 – 10:30

FORECASTING INFLATION WITH MACHINE LEARNING, ALT DATA AND PYTHON

Inflation has become a key topic in recent months. In our talk, we discuss how to approach the topic from a machine learning perspective, and how to incorporate alternative data in the process. We will also discuss the tech stack we have used and the various Python libraries involved, as well as how we've speeded up the code.

**Presenter: Saeed Amen: Turnleaf Analytics / Cuemacro /
Visiting Lecturer at QMUL**

09:45 – 10:30

SLOW VS FAST ESG SCORES: DO THEY MEASURE THE SAME THING?

- What are the similarities and differences between "slow" ESG scores (of Sustainalytics, Moody's and such) and "fast", media-based ESG data, obtained with AI and NLP?
- What can we learn from this comparison?
- What are financial consequences of using fast ESG information?
- Can fast ESG data help us design successful trading and investment strategies?

Presenter: Svetlana Borovkova: Head of Quantitative Modelling, Probability & Partners and Associate Professor, Vrije Universiteit Amsterdam

MAIN CONFERENCE DAY TWO: FRIDAY 19TH MAY

ALT DATA & VOLATILITY STREAM

ESG AND CLIMATE RISK QUANT MODELLING TECHNIQUES STREAM

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

11:00 – 11:45

VALIDATING SYNTHETIC DATA WITH AI (TOPIC TO BE CONFIRMED)

Presenter: Jodie Humphreys: Director, Bank of America

11:00 – 11:45

FUNDAMENTAL RATIOS AS PREDICTORS OF ESG SCORES: A MACHINE LEARNING APPROACH

Presenter: Rita Laura D'Ecclesia Professor:
Università degli Studi di Roma "La Sapienza"

11:45 – 12:30

SENTIMENT INVESTING, WITH APPLICATIONS FOR ALPHA AND RISK MODELLING

Presenter: Ganchi Zhang: QIS research, Director,
Deutsche Bank

11:45 – 12:30

CO2eVA: PRICING CARBON EXTERNALITIES TRANSITION

Presenter: Chris Kenyon: Director: Head of XVA Quant
Modelling, MUFG Securities EMEA plc

12:30 – 13:30 LUNCH

13:30 – 14:15

ARBITRAGE-FREE FX IMPLIED VOLATILITY BY VARIATIONAL INFERENCE

We introduce an approach to obtain no-arbitrage FX implied volatilities from bid and ask of ATM, risk reversal, and butterfly volatilities

- Market convention in FX option market
- Variational inference and Kullback-Leibler divergence
- Conditions for arbitrage-free and correct order in strike rates
- Algorithm
- Numerical examples

Presenter: Yoshihiro Tawada: Director: Head of FX-flow Quant
Modelling, MUFG Securities EMEA plc

13:30 – 14:15

CARBON-EQUIVALENCE PRINCIPLE IN ACTION

- Carbon-equivalence principle
- Policy-impacted climate finance
- Marginal financial net-zero
- Minimization of carbon costs
- Green hedge business

Presenter: Andrea Macrina: Professor of Mathematics, University
College London (UCL)

14:15 – 15:00

MODELING IMPLIED VOLATILITY SURFACES OF CRYPTO OPTIONS

Presenter: Parviz Rakhmonov: Vice President, Quantitative
Analyst, Citibank

14:15 – 15:00

CLIMATE RISK MODELLING

- Mapping physical risk and transition risks
- Earning at risks
- Scenario analysis
- Climate VaR
- Practical examples

Presenter: Maurizio Garro: Senior Lead – IBOR Transition
programme, Lloyds Banking Group

MAIN CONFERENCE DAY TWO: FRIDAY 19TH MAY

ALT DATA & VOLILITY STREAM

ESG AND CLIMATE RISK QUANT
MODELLING TECHNIQUES STREAM

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

15:15 – 16:00

WHAT THE PANDEMIC, WAR IN UKRAINE AND THE RETURN OF INFLATION TELL YOU – A CONTRARIAN LOOK AT ESG

- Geophysical basis of climate and adverse weather events: what do reinsurers think?
- The energy mix and other resource intensive industries.
- Two years after "Peak ESG", what remains? ESG versus free markets.
- Is the financial industry the right tool to craft environmental policy?
- How to invest your portfolio through a greenwash boom and bust?

Presenter: Erik Vynckier: Interim Chief Executive, Foresters Friendly Society

CONFERENCE SPONSORS



CompatibL is a leading provider of risk management software, model validation and quantitative consultancy services. The company's award-winning cloud and on-premises software solution is used by financial institutions worldwide, including four major derivatives dealers, central banks and some of the world's largest asset managers.

Our quantitative research program produced multiple innovations in models and numerical methods for counterparty credit risk, settlement risk, risk premia in the yield curve, and has been recognized by multiple awards.

www.compatibl.com

Contact Elena Ovsianko: elenao@compatibl.com



RavenPack is the leading big data analytics provider for financial services. The company's data solutions, research and technology allow clients to enhance returns, reduce risk, and increase efficiency by systematically incorporating the effects of public information in their models and workflows. RavenPack's clients include the most successful hedge funds, banks, and asset managers in the world.

www.ravenpack.com



THE 2ND QUANTITATIVE FINANCE CONFERENCE (SPRING EDITION)
LEVEL39, CANARY WHARF, LONDON
17TH - 19TH MAY 2023

CONFERENCE FEE STRUCTURE

	Early Bird Discount: 25% until 31st March	Early Bird Discount: 15% until 28th April	Regular Event Fee
<input type="checkbox"/> Conference attendance:	£1424.25 + UK VAT	£1614.15 + UK VAT	£1899.00 + UK VAT
<input type="checkbox"/> Workshop attendance:			
<input type="checkbox"/> Special Discount Code:	<input type="text"/>		

SPECIAL OFFER: When 2 colleagues attend the 3rd goes free!

70% Academic Discount / FULL-TIME Students Only

DELEGATE DETAILS
COMPANY:
NAME:
JOB TITLE/POSITION:
NAME:
JOB TITLE/POSITION:
NAME:
JOB TITLE/POSITION:
DEPARTMENT:
ADDRESS:
COUNTRY:
TELEPHONE:
E-MAIL:
DATE:
SIGNATURE:

TO REGISTER, PLEASE EMAIL THE COMPLETED BOOKING FORM TO:

sales@wbstraining.com

FLIGHT DETAILS:

All delegates flying into London on the morning of the event are reminded that they should arrive 30 minutes before the conference starts for registration. The venue's 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.

SPONSORSHIP:

World Business Strategies Ltd, offer sponsorship opportunities for all events, e-mail headers and the web site. Contact sponsorship via telephone on: +44 (0)1273 201 352

DISCLAIMER:

World Business Strategies command the rights to cancel or alter any part of this programme.

CANCELLATION:

By completing this form, the client hereby enters into an agreement stating that if a cancellation is made in writing within two weeks of the event date no refund shall be given. However, in certain circumstances a credit note may be issued for future events. Prior to the two-week deadline, cancellations are subject to a fee of 25% of the overall event cost

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).

By completing and submitting this form, you accept WBS Training's GDPR Policy (www.wbstraining.com/details/gdpr) and agree to communication from time to time with relevant details and information on WBS Training events and services

REGISTRATION:
Tel: +44 (0)1273 201 352

CONTACT:
www.wbstraining.com | sales@wbstraining.com