SESSIONS

SUMMIT & WORKSHOPS - 06/12/2021

Summit registration & coffee

08:30 - 09:00
Artificial Intelligence & Machine Learning Summit

Chair's opening and welcome

09:00 - 09:05
Artificial Intelligence & Machine Learning Summit

Workshop registration & coffee

09:00 - 09:25
Volatility Workshop

The AI & ML horizon: where are we now and how far have we come?

09:05 - 09:40
Artificial Intelligence & Machine Learning Summit

Workshop leader's opening remarks

09:25 - 09:30
Volatility Workshop

Participants

Workshop leader: Bruno Dupire - Head Of Quantitative Research, Bloomberg L.P.

Volatility fundamentals

09:30 - 11:00
Volatility Workshop

- Historical volatility estimation and implied volatility calculation
- How to construct a good implied volatility surface
- How to compute a fair skew in the absence of options
- Market facts: volatility regimes, handling earnings

Participants

Workshop leader: Bruno Dupire - Head Of Quantitative Research, Bloomberg L.P.

Market Generators and Regime detection - title tbc

09:40 - 10:20
Artificial Intelligence & Machine Learning Summit

Participants

Speaker: Blanka Horvath - Lecturer in Financial Mathematics, King's College London

The use of alternative data and artificial intelligence for investing:

10:20 - 11:00
Artificial Intelligence & Machine Learning Summit

Participants

Speaker: Sylvain Forté - CEO & Founder, SESAMm

Morning coffee & networking break

11:00 - 11:30
Artificial Intelligence & Machine Learning Summit

Morning coffee & networking break

11:00 - 11:30
Volatility Workshop

Nowcasting

11:30 - 12:15
Artificial Intelligence & Machine Learning Summit

Participants

Speaker: Marc Chataigner - PhD Candidate, University of Évry

Volatility models

11:30 - 13:00
Volatility Workshop

- Review of the most commonly used volatility models: Black-Scholes, Local Volatility model, Heston model, SABR models, stochastic local volatility model. Path dependent models, fractional volatility
- Implementation of the Local Volatility model
- Implementation of Local Stochastic Volatility models
- Machine Learning to create data driven models
- Case studies: Barrier options, AutoCallables and Accumulators

Participants

Workshop leader: Bruno Dupire - Head Of Quantitative Research, Bloomberg L.P.

Quantum Forests

12:15 - 13:00
Artificial Intelligence & Machine Learning Summit

Using forest and ensembles for Quantum support vector machines and considering how this improves overall workflow.

Participants

Speaker: Jan Novotny - eFX Quant, Nomura

Lunch & networking break

13:00 - 14:00
Artificial Intelligence & Machine Learning Summit

Lunch & networking break

13:00 - 14:00
Volatility Workshop

The N-LASR Algorithm

14:00 - 14:45
Artificial Intelligence & Machine Learning Summit

Participants

Speaker: Caio Natividade - Head of QIS Research, Deutsche Bank

Volatility Derivatives

14:00 - 15:30
Volatility Workshop

- Variance swaps, replication, practical issues
- Volatility swaps
- Cross corridor variance swaps
- VIX: Spot, Futures, options and ETFs
- Options on realized variance

Participants

Workshop leader: Bruno Dupire - Head Of Quantitative Research, Bloomberg L.P.

Automation approaches for effectively moving ML models through validation and into production

14:45 - 15:30
Artificial Intelligence & Machine Learning Summit

Participants

Speaker: David Van Bruwaene - Co-founder & CEO, Fairly AI

Afternoon tea & networking break

15:30 - 16:00
Artificial Intelligence & Machine Learning Summit

Afternoon tea & networking break

15:30 - 16:00
Volatility Workshop

Model based Machine Learning for derivatives modelling, with application to local volatility modeling

16:00 - 16:45
Artificial Intelligence & Machine Learning Summit

Participants

Speaker: Matthew Dixon - Assistant Professor of Finance, Department of Applied Mathematics & Stuart School of Business - Illinois Institute of Technology

Speaker: Marc Chataigner - PhD Candidate, University of Évry

Speaker: Stéphane Crépey - Professor of Mathematics , Université de Paris, LPSM

Volatility trading & arbitrage:

16:00 - 17:25
Volatility Workshop

- Volatility as an asset class
- Frequency/phase arbitrage
- Skew trades
- Term structure of VIX arbitrage
- Earning trades: 3 ways to play forward variance

Participants

Workshop leader: Bruno Dupire - Head Of Quantitative Research, Bloomberg L.P.

Building Scalable Machine Learning Models

16:45 - 17:30
Artificial Intelligence & Machine Learning Summit

Workshop leader's closing remarks

17:25 - 17:30
Volatility Workshop

Participants

Bruno Dupire - Head Of Quantitative Research, Bloomberg L.P.

Networking drinks and expert-led discussion groups

17:30 - 18:15
Artificial Intelligence & Machine Learning Summit

Networking drinks

17:30 - 18:15
Volatility Workshop

SCHEDULE

SUMMIT & WORKSHOPS - 06/12/2021

QuantMinds International

6-10 December 2021
Hotel Fairmont Barcelona Rey Juan Carlos I
Barcelona

TIME	ARTIFICIAL INTELLIGENCE & MACHINE LEARNING SUMMIT	VOLATILITY WORKSHOP
08:00	**08:30** - Summit registration & coffee	
09:00	**09:00** - Chair's opening and welcome **09:05** - The AI & ML horizon: where are we now and how far have we come? **09:40** - Market Generators and Regime detection - title tbc	**09:00** - Workshop registration & coffee **09:25** - Workshop leader's opening remarks **09:30** - Volatility fundamentals
10:00	**10:20** - The use of alternative data and artificial intelligence for investing:	
11:00	**11:00** - Morning coffee & networking break **11:30** - Nowcasting	**11:00** - Morning coffee & networking break **11:30** - Volatility models
12:00	**12:15** - Quantum Forests	
13:00	**13:00** - Lunch & networking break	**13:00** - Lunch & networking break
14:00	**14:00** - The N-LASR Algorithm **14:45** - Automation approaches for effectively moving ML models through validation and into production	**14:00** - Volatility Derivatives
15:00	**15:30** - Afternoon tea & networking break	**15:30** - Afternoon tea & networking break
16:00	**16:00** - Model based Machine Learning for derivatives modelling, with application to local volatility modeling **16:45** - Building Scalable Machine Learning Models	**16:00** - Volatility trading & arbitrage:
17:00	**17:30** - Networking drinks and expert-led discussion groups	**17:25** - Workshop leader's closing remarks **17:30** - Networking drinks

SESSIONS

MAIN CONFERENCE DAY 1 DRAFT AGENDAE - 07/12/2021

Registration & coffee

08:30 - 09:00

When the going gets rough — the tough get going

09:00 - 09:40
A: Option Pricing, Trading & Volatility

- Fractionality and rough volatility — again again.
- Exponential basis, markovian projections, and simulation schemes.
- The s&p and vix option conundrum.
- Local volatility overlay and calibration per Monte-Carlo.

Participants

Speaker: Jesper Andreasen - Kwant Father, Saxo Bank

Beyond Convexity

09:00 - 09:40
B: Alpha & Quant Investing

Participants

Jessica James - Managing Director, Senior Quantitative Researcher, Commerzbank AG

The state of play; transitioning legacy trades - title tbc

09:00 - 09:40
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Vladimir Piterbarg - MD, Head of Quantitative Analytics & Development, NatWest Markets

Numerical stability of Adjoints of implicit functions

09:00 - 09:40
D: Quant Innovation: Data, Computational & Numerical Efficiency

Participants

Speaker: Uwe Naumann - Professor Of Computer Science, RWTH Aachen University

Multilayer heat equations, application to finance

09:40 - 10:20
A: Option Pricing, Trading & Volatility

Participants

Andrey Itkin - Director, Senior Research Associate, Bank Of America

Next generation machine learning techniques for alpha generation

09:40 - 10:20
B: Alpha & Quant Investing

Participants

Andrea Nardon - Chief Quant Officer, Fund Manager, Black Alpha Capital

Completing the Generalized Forward Market Model: Genesis and Extensions

09:40 - 10:20
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Fabio Mercurio - Head of Quant Analytics, Bloomberg L.P.

New frontiers in data science and quant finance: Topological data analysis for stock selection

09:40 - 10:20
D: Quant Innovation: Data, Computational & Numerical Efficiency

Participants

Speaker: Matthew Dixon - Assistant Professor of Finance, Department of Applied Mathematics & Stuart School of Business - Illinois Institute of Technology

Local volatility under rough volatility

10:20 - 11:00
A: Option Pricing, Trading & Volatility

Participants

Speaker: Peter Friz - Professor of Mathematics, TU Berlin, Weierstraß-Institut Berlin

A Human-Machine systematic investment framework for wealth management

10:20 - 11:00
B: Alpha & Quant Investing

Participants

Speaker: Emilio Llorente Cano - Head of Investments, Recognition AMS

From quantum to quantos: effective path integral approximations for semi-analytical pricing of quanto CDS

10:20 - 11:00
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Luca Capriotti - Head Quantitative Strategies Credit Products and Structured Notes, Credit Suisse

Have your cake and eat it: reverse-mode AD via operator overloading

10:20 - 11:00
D: Quant Innovation: Data, Computational & Numerical Efficiency

The AD world basically splits in two. Source transformation can give incredibly efficient adjoints, but is fundamentally restricted to "simple languages" like subsets of C. On the other hand. operator overloading is successful in handling large, complex, production codes, but only if you can overcome the inherent memory growth. In theory there's nothing stopping us combining these two ideas, although it turns out that developing an industrially relevant tool is not so easy. We will show a preview of such new functionality in NAG's AD portfolio, discussing its strengths and limitations, and showing early results of applying this to a selection of codes.

Participants

Speaker: Jacques Du Toit - Product Manager, Financial Services, NAG

Coffee & networking

11:00 - 11:30

The Beauty and Power of Forward Equations

11:30 - 12:15
A: Option Pricing, Trading & Volatility

Participants

Bruno Dupire - Head Of Quantitative Research, Bloomberg L.P.

SESSIONS

MAIN CONFERENCE DAY 1 DRAFT AGENDAE - 07/12/2021

Tackling ESG challenges to smart beta strategies

11:30 - 12:15
B: Alpha & Quant Investing

Smart beta is a disrupting financial innovation that we believe will be disrupted by the ESG transition. How should smart beta managers position their products within the large ESG spectrum and how should they align their investment objectives and adapt their frameworks accordingly in order to achieve those outcomes in their portfolios? This paper discusses the main emerging directions in the industry to overcome the ESG challenges. We show why those challenges should be regarded by smart beta managers as opportunities instead of threats.

Participants

Speaker: Hamza Bahaji - Head of Engineering and Solutions, Amundi

What short rate model should I use?

11:30 - 12:15
C: Interest Rate Modelling, Trading & IBOR

- Existing short rate models struggle with extensibility to risk-free rates post-LIBOR.
- Convenient trade-offs between accuracy/realism and tractability are rare, but increasingly desirable for risk management.
- We propose a new approach embedding standard approaches in a broader framework which facilitates a better fit to market smile/skew.
- A trade-off is offered within this framework between model dimensionality and calibration quality.
- At the same time, highly accurate asymptotic approximations are available for bond and option prices.

Participants

Speaker: Colin Turfus - Quantitative Analyst, Deutsche Bank

The role of alternative and synthetic data in engineering for future

11:30 - 12:15
D: Quant Innovation: Data, Computational & Numerical Efficiency

Participants

Speaker: Ioana Boier - Head of Quantitative Portfolio Solutions, Alphadyne Asset Management

Modeling volatility index with a conformal process

12:15 - 13:00
A: Option Pricing, Trading & Volatility

Participants

Speaker: Gregory Pelts - Director, Scotia Bank

Downside Variance Risk Premium

12:15 - 13:00
B: Alpha & Quant Investing

Participants

Speaker: Nicolo Marini - Proprietary Trader - Macro Risk Management, Intesa Sanpaolo

Speaker: Marco Scaringi - Quantitative Analyst, Intesa Sanpaolo

Between Scylla and Charybdis: The Bermudan swaptions pricing odyssey

12:15 - 13:00
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Dariusz Gatarek - Professor, Systems Research Institute, Polish Academy of Sciences

Evaluating new sources of and different applications of common data sources

12:15 - 13:00
D: Quant Innovation: Data, Computational & Numerical Efficiency

Lunch

13:00 - 14:00

A Malliavin calculus approach to volatility modelling

14:00 - 14:45
A: Option Pricing, Trading & Volatility

Participants

Speaker: Elisa Alòs Alcalde - Associate Professor, Universitat Pompeu Fabra (UPF)

Speaker: David Garcia Lorite - Quantitative Analyst, Caixabank

Systematic strategies for crypto assets

14:00 - 14:40
B: Alpha & Quant Investing

- Challenges and opportunities for systematic strategies
- Investable universe of crypto assets
- Time series and cross-sectional factor strategies
- Portfolio construction and diversification

Participants

Speaker: Artur Sepp - Quantitative Strategist, Independent

Pricing interest rate options

14:00 - 14:45
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Emiliano Papa - Director - Head of Rates and FX, Deutsche Bank

High Frequency Trading and DeFi: Ideas, strategies, building blocks and other considerations

14:00 - 14:45
D: Quant Innovation: Data, Computational & Numerical Efficiency

Decentralized finance(DeFi) has opened the door for a new generation of high-frequency trading(HFT) in the crypto space. From basic arbitrages to super sophisticated algorithms, we can see HFT bots all across the DeFi space. How does HFT works in DeFi?

This session will present some of the core ideas behind HFT algorithms in the DeFi space. We will discuss key building blocks of HTF-DeFi infrastructures, risks and show real trades that explain these concepts. Finally, we will also discuss how the advent of Ethereum 2.0 can change the HFT landscape in DeFi.

Participants

Speaker: Jesus Rodriguez - Chief Technology Officer, IntoTheBlock

Integrating Time Series and Onchain Data For quntitative investing in the Crypto space

14:40 - 15:25
B: Alpha & Quant Investing

Participants

Speaker: Gurraj Sangha - Chief Quantitative Investment Officer, Token Metrics Ventures

Pricing and risk analysis in hyperbolic local volatility model with quasi Monte Carlo

14:45 - 15:30
A: Option Pricing, Trading & Volatility

Participants

Speaker: Julien Hok - Director, Quantitative Analysis, Credit Agricole-CIB

Speaker: Sergei Kucherenko - Senior Research Fellow, Imperial College London

SESSIONS

MAIN CONFERENCE DAY 1 DRAFT AGENDAE - 07/12/2021

Pricing Forward Starting Swaptions

14:45 - 15:30
C: Interest Rate Modelling, Trading & IBOR

Participants

speaker: Sander Willems - Quantitative Analyst, RBC Capital Markets

Smart contract technology: transforming how financial securities and derivatives are modelled

14:45 - 15:30
D: Quant Innovation: Data, Computational & Numerical Efficiency

- What is a “smart” contract?
- Must smart contracts live on a blockchain? (briefly: no, but merits some discussion)
- Specifying a smart contract
- Analysing a smart contract, automation
- Linking a smart contract to models
- Potential for modelling

Participants

Speaker: Jochen Theis - tbc, Independent

Afternoon tea & networking

15:30 - 16:00

Rough Volatility

16:00 - 17:30
A: Option Pricing, Trading & Volatility

Participants

Speaker: Mathieu Rosenbaum - Resident Professor, Ecole Polytechnique

Market Microstructure

16:00 - 16:30
B: Alpha & Quant Investing

Presentation: Trading costs of portfolios: insights from cross-impact with Mehdi Tomas, École Polytechnique

Panel: Recent approaches to managing trading costs in complex portfolios

Moderator: Zoltan Eisler, Element Capital

Participants

Speaker: Mehdi Tomas - PhD Student, École Polytechnique

Moderator: Zoltan Eisler , Element Capital

IBOR Transition

16:00 - 17:30
C: Interest Rate Modelling, Trading & IBOR

Pricing transition risk Impact and challenges

Alternative & Synthetic Data

16:00 - 17:30
D: Quant Innovation: Data, Computational & Numerical Efficiency

- What is good practices when it working with synthetic data?
- How should we be producing it
- What are the considerations when using it for other purposes e.g. augmenting for other models?
- what are the pitfalls and how do we address them?

Participants

Panellist: Samuel Cohen - Associate Professor,Theme lead for ML in Finance Alan Turing Institute, University of Oxford

Networking drinks and working groups

17:30 - 18:30

SCHEDULE

MAIN CONFERENCE DAY 1 DRAFT AGENDAE - 07/12/2021

QuantMinds International

6-10 December 2021
Hotel Fairmont Barcelona Rey Juan Carlos I
Barcelona

TIME	A: OPTION PRICING, TRADING & VOLATILITY	B: ALPHA & QUANT INVESTING	C: INTEREST RATE MODELLING, TRADING & IBOR	D: QUANT INNOVATION: DATA, COMPUTATIONAL & NUMERICAL EFFICIENCY
08:00	**08:30** - Registration & coffee	**08:30** - Registration & coffee	**08:30** - Registration & coffee	**08:30** - Registration & coffee
09:00	**09:00** - When the going gets rough — the tough get going **09:40** - Multilayer heat equations, application to finance	**09:00** - Beyond Convexity **09:40** - Next generation machine learning techniques for alpha generation	**09:00** - The state of play; transitioning legacy trades - title tbc **09:40** - Completing the Generalized Forward Market Model: Genesis and Extensions	**09:00** - Numerical stability of Adjoints of implicit functions **09:40** - New frontiers in data science and quant finance: Topological data analysis for stock selection
10:00	**10:20** - Local volatility under rough volatility	**10:20** - A Human-Machine systematic investment framework for wealth management	**10:20** - From quantum to quantos: effective path integral approximations for semi-analytical pricing of quanto CDS	**10:20** - Have your cake and eat it: reverse-mode AD via operator overloading
11:00	**11:00** - Coffee & networking **11:30** - The Beauty and Power of Forward Equations	**11:00** - Coffee & networking **11:30** - Tackling ESG challenges to smart beta strategies	**11:00** - Coffee & networking **11:30** - What short rate model should I use?	**11:00** - Coffee & networking **11:30** - The role of alternative and synthetic data in engineering for future
12:00	**12:15** - Modeling volatility index with a conformal process	**12:15** - Downside Variance Risk Premium	**12:15** - Between Scylla and Charybdis: The Bermudan swaptions pricing odyssey	**12:15** - Evaluating new sources of and different applications of common data sources
13:00	**13:00** - Lunch	**13:00** - Lunch	**13:00** - Lunch	**13:00** - Lunch
14:00	**14:00** - A Malliavin calculus approach to volatility modelling **14:45** - Pricing and risk analysis in hyperbolic local volatility model with quasi Monte Carlo	**14:00** - Systematic strategies for crypto assets **14:40** - Integrating Time Series and Onchain Data For quntitative investing in the Crypto space	**14:00** - Pricing interest rate options **14:45** - Pricing Forward Starting Swaptions	**14:00** - High Frequency Trading and DeFi: Ideas, strategies, building blocks and other considerations **14:45** - Smart contract technology: transforming how financial securities and derivatives are modelled
15:00	**15:30** - Afternoon tea & networking	**15:30** - Afternoon tea & networking	**15:30** - Afternoon tea & networking	**15:30** - Afternoon tea & networking
16:00	**16:00** - Rough Volatility	**16:00** - Market Microstructure	**16:00** - IBOR Transition	**16:00** - Alternative & Synthetic Data

SCHEDULE

MAIN CONFERENCE DAY 1 DRAFT AGENDAE - 07/12/2021

TIME	A: OPTION PRICING, TRADING & VOLATILITY	B: ALPHA & QUANT INVESTING	C: INTEREST RATE MODELLING, TRADING & IBOR	D: QUANT INNOVATION: DATA, COMPUTATIONAL & NUMERICAL EFFICIENCY
17:00	**17:30** - Networking drinks and working groups	**17:30** - Networking drinks and working groups	**17:30** - Networking drinks and working groups	**17:30** - Networking drinks and working groups

SESSIONS

MAIN CONFERENCE DAY 2 DRAFT AGENDA - 08/12/2021

Registration & coffee

08:30 - 09:00

Asymetric Greeks and applications

09:00 - 09:40
A: Option Pricing, Trading & Volatility

Participants

Speaker: Nadhem Meziou - Head of Fixed Income Quantitative Research, Natixis

Modelling Exposures in the Presence of Leverage, Market Gaps and Fat Tails

09:00 - 09:40
B: Risk Management: Model Risk & Liquidity

- There have been a recent cluster of severe losses: Archegos, ParPlus and at Nasdaq.
- We present new results on how to model the risks posed by margin-triggered defaults of overly levered counterparties.
- We introduce a tractable generalization of classical default intensity models that links defaults and gaps in the market.
- Numerical results demonstrate the severity of risk posed by excessive leverage (and the interplay with fat tails).
- (These results are an extension of previous joint work with Leif Andersen, 2020)

Participants

Speaker: Andrew Dickinson - Director, Bank of America

Modelling framework for term rates replacing LIBOR - title tbc

09:00 - 09:40
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Maurizio Garro - Senior Lead, IBOR Transition Programme, Lloyds Banking Group

Black Basket Analytics for Mid-Curves and Spread-Options

09:00 - 09:40
D: Quant Innovation: Algo Trading & ML

Participants

speaker: Alexander Antonov - Chief Analyst, Danske Bank

JDOI Variance Reduction and American Option Pricing

09:40 - 10:20
A: Option Pricing, Trading & Volatility

Participants

speaker: Ludovic Mathys - Equity Derivatives Trader, UBS

Darwinian model risk and reverse stress testing

09:40 - 10:20
B: Risk Management: Model Risk & Liquidity

We consider the model risk born of adverse selection, within the available models, of those leading to high purchase prices (as necessary for competitiveness on the market), even if this means alpha-leakage, but with corresponding losses that are more than offset in the short-and medium-term by gains on the hedging side of the position. At least, this happens until a financial crisis reveals the erroneous nature of the model used, forcing the bank to liquidate its position and its hedge at the cost of heavy losses. This "Darwinian" model risk is directional (related to a long-term moment of order one of), likely to stay unnoticed from traditional risk systems, which are focused on shorter-term moments of order two and beyond. One possible approach to detect it consists of long-term, large-scale simulations, revealing the consequences of using various models in extreme scenarios. The erroneous models are then discarded while the admissible models can be combined within a Bayesian robust approach.

Claudio Albanese, Stéphane Crépey, and Stefano Iabichino (2021)

Participants

Speaker: Stéphane Crépey - Professor of Mathematics , Université de Paris, LPSM

Considering the impact of IBOR reform for non-IR models

09:40 - 10:20
C: Interest Rate Modelling, Trading & IBOR

Deep learning and reinforcement learning trading strategies

09:40 - 10:20
D: Quant Innovation: Algo Trading & ML

Understanding dependencies in financial markets

10:20 - 11:00
A: Option Pricing, Trading & Volatility

Participants

Speaker: Daniel Linders - Assistant Professor in Actuarial Science & Mathematical Finance, University of Amsterdam

Modelling Energy Curves for XVA

10:20 - 11:00
B: Risk Management: Model Risk & Liquidity

Participants

speaker: Andrew McClelland - Director, Quantitative Research, Numerix

Incompleteness of New Interest Rate Benchmarks

10:20 - 11:00
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Andrea Macrina - Reader in Mathematics, University College London

New research on regime detection and classification

10:20 - 11:00
D: Quant Innovation: Algo Trading & ML

Participants

Speaker: Aitor Muguruza Gonzalez - Head of Quantitative Modelling and Data Analytics, Kaiju Capital Management

Coffee & networking

11:00 - 11:30

Predicting the VIX from the S&P 500 path: a machine-learning approach to path-dependent volatility

11:30 - 12:15
A: Option Pricing, Trading & Volatility

Participants

Speaker: Julien Guyon - Senior Quantitative Analyst, Bloomberg L.P.

SESSIONS

MAIN CONFERENCE DAY 2 DRAFT AGENDA - 08/12/2021

Equity-Credit portfolios modelling: market dynamics, key drivers and modelling choices

11:30 - 12:15
B: Risk Management: Model Risk & Liquidity

- Equity-credit short term link: conundrum of correlation
- Market dynamics and key drivers
- Single name vs. factor models for equity and credit asset classes: different standards
- Single name approach: the best predictor for equity-credit correlation or superfluous information?
- Factor models vs. single name approach. : modelling choices, their power, stability, counterparty risk vs. asset management

Participants

Speaker: Vladimir Chorniy - Senior Technical Lead, BNP Paribas

Fast and accurate calculation of CVA/DVA/RPA.

11:30 - 12:15
C: Interest Rate Modelling, Trading & IBOR

Participants

speaker: Viatcheslav Belyaev - Senior Quantitative Analyst, U.S. Bank

Learning Exotic Derivatives without calibration

11:30 - 12:15
D: Quant Innovation: Algo Trading & ML

Participants

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

Arbitrage prediction in bond trading with machine-learning approaches

12:15 - 12:55
A: Option Pricing, Trading & Volatility

Participants

Daniel Mayenberger - CIB Data, Analytics & AI, J.P. Morgan

Applications of machine learning to VaR estimation for Global Macro portfolios

12:15 - 13:00
B: Risk Management: Model Risk & Liquidity

Participants

Speaker: Shivi Bansal - Senior Risk Strategist, Element Capital Management

Risk-free rate options pricing

12:15 - 13:00
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Aurelio Romero-Bermudez - Quantitative Analyst, Deutsche Bank

Crypto market-making for illiquid coins and tokens

12:15 - 13:00
D: Quant Innovation: Algo Trading & ML

Participants

Speaker: Anton Golub - Co-founder & CEO, Flovtec

Lunch

13:00 - 14:00

Modeling volatility for options on crypto assets

14:00 - 14:40
A: Option Pricing, Trading & Volatility

- Specifics of crypto option markets and exchanges
- Challenges in applying traditional dynamic volatility models
- Log-normal volatility model with arbitrage-free dynamics
- Applications to modeling implied volatilities of Bitcoin and Ethereum

Participants

Speaker: Artur Sepp - Quantitative Strategist, Independent

Model Risk Management, Past, Present and Future

14:00 - 14:40
B: Risk Management: Model Risk & Liquidity

Participants

Speaker: Jon Hill - Professor of Model Risk Management, Dept. of Financial Risk Engineering, NYU-Tandon

Repo Curve building: a modern derivatives approach

14:00 - 14:40
C: Interest Rate Modelling, Trading & IBOR

Participants

Speaker: Daniel Zimarev - Financial Engineer, UBS Investment Bank

Conditional expectations: Model free, data driven, fast (with applications to pricing and hedging)

14:00 - 14:40
D: Quant Innovation: Algo Trading & ML

Participants

speaker: Jörg Kienitz - Adjunct Associate Professor and Associate Professor, University of Cape Town and University of Wuppertal

Tsar Option

14:40 - 15:20
A: Option Pricing, Trading & Volatility

Evaluating new ways of pricing Occupation Time derivatives, improvements on previous approaches and latest developments.

Participants

Speaker: Alexander Skabelin - Quantitative finance manager, Bank of America

Model risk quantification based on relative entropy

14:40 - 15:20
B: Risk Management: Model Risk & Liquidity

Participants

speaker: Daniel Arrieta Rodriguez - Senior Model Validation Quant, Santander

Scenario generation for risk management

14:40 - 15:20
C: Interest Rate Modelling, Trading & IBOR

Machine Learning and stress testing

14:40 - 15:20
D: Quant Innovation: Algo Trading & ML

- Stylized facts about returns
- Generating synthetic data
- VaR and ES with high confidence levels
- Results of tests

Participants

Speaker: John Hull - Maple Financial Professor Of Derivatives & Risk Management, Joseph L. Rotman School of Management at University Of Toronto

SESSIONS

MAIN CONFERENCE DAY 2 DRAFT AGENDA - 08/12/2021

A PDE-based Quantum Algorithm for Pricing Financial Derivatives

15:20 - 16:00
A: Option Pricing, Trading & Volatility

Participants

Speaker: Ángel Rodríguez-Rozas - Associate Director – Quantitative Analyst, Model Validation, Banco Santander

Model enhancements to increase CVA proxy hedging efficiencies

15:20 - 16:00
B: Risk Management: Model Risk & Liquidity

Participants

Speaker: Shengyao Zhu - Senior Quant, xVA trading desk, Nordea

Reinforced calibration algorithms

15:20 - 16:00
C: Interest Rate Modelling, Trading & IBOR

Algo Trading advances

15:20 - 16:00
D: Quant Innovation: Algo Trading & ML

Participants

Speaker: Arta Babaee - Academic Visitor, Thayer Brook Partners LLP

Afternoon tea & networking

16:00 - 16:30

Harvesting the FX volatility risk premium with Python

16:30 - 17:10
A: Option Pricing, Trading & Volatility

Participants

speaker: Saeed Amen - Founder, Cuemacro

Market Melt-Down – The War-Game!

16:30 - 18:00
B: Risk Management: Model Risk & Liquidity

Test your forecasting & problem-solving skills in this specially designed war game to stress-test financial institutions against various scenarios. Put your models to the test with John Hulsman, U.S. Council on Foreign Relations

Participants

speaker: John Hulsman - Geopolitical Expert & Life Member, U.S. Council On Foreign Relations

Pricing and Modelling deep dive

16:30 - 18:00
C: Interest Rate Modelling, Trading & IBOR

Differential Machine Learning Masterclass

16:30 - 18:00
D: Quant Innovation: Algo Trading & ML

Participants

speaker: Antoine Savine - Chief Quantitative Analyst, Danske Bank

speaker: Brian Huge - Chief Quantitative Analyst, Saxo Bank

Networking drinks and working groups

18:00 - 19:30

SCHEDULE

MAIN CONFERENCE DAY 2 DRAFT AGENDA - 08/12/2021

QuantMinds International

6-10 December 2021
Hotel Fairmont Barcelona Rey Juan Carlos I
Barcelona

TIME	A: OPTION PRICING, TRADING & VOLATILITY	B: RISK MANAGEMENT: MODEL RISK & LIQUIDITY	C: INTEREST RATE MODELLING, TRADING & IBOR	D: QUANT INNOVATION: ALGO TRADING & ML
08:00	**08:30** - Registration & coffee	**08:30** - Registration & coffee	**08:30** - Registration & coffee	**08:30** - Registration & coffee
09:00	**09:00** - Asymetric Greeks and applications **09:40** - JDOI Variance Reduction and American Option Pricing	**09:00** - Modelling Exposures in the Presence of Leverage, Market Gaps and Fat Tails **09:40** - Darwinian model risk and reverse stress testing	**09:00** - Modelling framework for term rates replacing LIBOR - title tbc **09:40** - Considering the impact of IBOR reform for non-IR models	**09:00** - Black Basket Analytics for Mid-Curves and Spread-Options **09:40** - Deep learning and reinforcement learning trading strategies
10:00	**10:20** - Understanding dependencies in financial markets	**10:20** - Modelling Energy Curves for XVA	**10:20** - Incompleteness of New Interest Rate Benchmarks	**10:20** - New research on regime detection and classification
11:00	**11:00** - Coffee & networking **11:30** - Predicting the VIX from the S&P 500 path: a machine-learning approach to path-dependent volatility	**11:00** - Coffee & networking **11:30** - Equity-Credit portfolios modelling: market dynamics, key drivers and modelling choices	**11:00** - Coffee & networking **11:30** - Fast and accurate calculation of CVA/DVA/RPA.	**11:00** - Coffee & networking **11:30** - Learning Exotic Derivatives without calibration
12:00	**12:15** - Arbitrage prediction in bond trading with machine-learning approaches	**12:15** - Applications of machine learning to VaR estimation for Global Macro portfolios	**12:15** - Risk-free rate options pricing	**12:15** - Crypto market-making for illiquid coins and tokens
13:00	**13:00** - Lunch	**13:00** - Lunch	**13:00** - Lunch	**13:00** - Lunch
14:00	**14:00** - Modeling volatility for options on crypto assets **14:40** - Tsar Option	**14:00** - Model Risk Management, Past, Present and Future **14:40** - Model risk quantification based on relative entropy	**14:00** - Repo Curve building: a modern derivatives approach **14:40** - Scenario generation for risk management	**14:00** - Conditional expectations: Model free, data driven, fast (with applications to pricing and hedging) **14:40** - Machine Learning and stress testing
15:00	**15:20** - A PDE-based Quantum Algorithm for Pricing Financial Derivatives	**15:20** - Model enhancements to increase CVA proxy hedging efficiencies	**15:20** - Reinforced calibration algorithms	**15:20** - Algo Trading advances
16:00	**16:00** - Afternoon tea & networking **16:30** - Harvesting the FX volatility risk premium with Python	**16:00** - Afternoon tea & networking **16:30** - Market Melt-Down – The War-Game!	**16:00** - Afternoon tea & networking **16:30** - Pricing and Modelling deep dive	**16:00** - Afternoon tea & networking **16:30** - Differential Machine Learning Masterclass

SCHEDULE

MAIN CONFERENCE DAY 2 DRAFT AGENDA - 08/12/2021

QuantMinds International

6-10 December 2021
Hotel Fairmont Barcelona Rey Juan Carlos I
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17:00				
18:00	**18:00** - Networking drinks and working groups	**18:00** - Networking drinks and working groups	**18:00** - Networking drinks and working groups	**18:00** - Networking drinks and working groups

SESSIONS

MAIN CONFERENCE DAY 3 DRAFT AGENDA - 09/12/2021

Morning coffee

08:15 - 08:30

Pricing European commodity spread options in the non-Markovian approach by the method of Eigenclaims

08:30 - 09:10
A: Option Pricing, Trading & Volatility

Participants

speaker: Valery Kholodnyi - Principal Quantitative Analyst, Verbund AG

Recent advances in quantitative financial regulation

08:30 - 09:10
B: Risk Management: Regulation, CCR & Clearing

Participants

Speaker: Mathieu Rosenbaum - Resident Professor, Ecole Polytechnique

The changing face of quant finance research – what are the million dollar questions QuantMinds are now and should in future be researching?

08:30 - 09:10
C: Quant 2.0: Quantifying Climate Change

Market Microstructure - Hawkes Processes and Flash Crashes

09:10 - 09:50
A: Option Pricing, Trading & Volatility

Participants

Speaker: Marcos Costa Santos Carreira - PhD Candidate, École Polytechnique

Controlling regulatory challenges of algorithmic credit scoring

09:10 - 09:50
B: Risk Management: Regulation, CCR & Clearing

Participants

speaker: Ligia Catherine Arias-Barrera - Associate Professor, Externado de Colombia University

Climate Change Risk : Sense and nonsense

09:10 - 09:50
C: Quant 2.0: Quantifying Climate Change

Participants

Speaker: Wim Schoutens - Professor Of Financial Engineering, University of Leuven

Session title tbc

09:50 - 10:30
A: Option Pricing, Trading & Volatility

Backtesting: Actual vs perceived challenges

09:50 - 10:30
B: Risk Management: Regulation, CCR & Clearing

The economics, pricing and hedging of ESG-linked derivatives

09:50 - 10:30
C: Quant 2.0: Quantifying Climate Change

Participants

speaker: Chris Kenyon - Global Head of Quant Innovation, MUFG

Coffee & networking

10:30 - 11:00

Stochastic (rough) volatility modelling

11:00 - 11:40
A: Option Pricing, Trading & Volatility

Participants

Eduardo Abi Jaber - Assistant Professor, Paris 1 Panthéon-Sorbonne University

Projecting Margins

11:00 - 11:40
B: Risk Management: Regulation, CCR & Clearing

Participants

Speaker: Matthias Arnsdorf - Global Head of XVA & Counterparty Credit Risk Modelling, JP Morgan Chase

A quantitative approach to climate-related credit risk, using Shared Socioeconomic Pathways

11:00 - 11:40
C: Quant 2.0: Quantifying Climate Change

Participants

Speaker: Emmanuel Gobet - Professor, Ecole Polytechnique

Singular exotic perturbation

11:40 - 12:20
A: Option Pricing, Trading & Volatility

Participants

Speaker: Adil Reghaï - Head of Quantitative Research Equity & Commodity Markets, Natixis

Considering the challenges and opportunities for quants in challenges implementing modern CCR management tools

11:40 - 12:20
B: Risk Management: Regulation, CCR & Clearing

Participants

Moderator: Holger Plank - Partner, d-fine

Advances in the Quantitative Modeling of the Energy Market

11:40 - 12:20
C: Quant 2.0: Quantifying Climate Change

Participants

Moderator: Valery Kholodnyi - Principal Quantitative Analyst, Verbund AG

Panellist: Erik Vynckier - Board Member, Foresters Friendly Society and Institute and Faculty of Actuaries

Opportunities in FI/FX hedging with the cross currency basis

12:20 - 13:00
A: Option Pricing, Trading & Volatility

Polynomial approximation of discounted moments, with applications to bond pricing and credit migration risk

12:20 - 13:00
B: Risk Management: Regulation, CCR & Clearing

Participants

speaker: Misha van Beek - Director, Blackrock

SESSIONS

MAIN CONFERENCE DAY 3 DRAFT AGENDA - 09/12/2021

ESG optimal allocation for insurance companies

12:20 - 13:00
C: Quant 2.0: Quantifying Climate Change

ESG AuM is expected to reach $50tn by 2025 (a third of Global AuM) within the context of growing customers ' demand and regulatory requirements, specifically in the Insurance industry. Although a naive diversification based on equally-weighted best ESG stocks portfolio provides a positive trend in performance relative to the benchmark, it still underperforms worst ESG stocks portfolios in terms of overall returns, risk, and cost of capital. As a result we build here an optimal asset allocation based on a nonlinear Markowitz program upgraded by ESG information and Value-at-Risk criteria, and solved it with a machine learning evolutionary nonlinar algorithm, which then delivers a clear outperformance in terms of overall returns, risk, and cost of capital, to the benefit of both customers and insurance companies.

Participants

Speaker: Aymeric Kalife - CEO and Founder, iDigital Partner

Lunch

13:00 - 14:00

Adapting to an increasing volatile and 'spikey' Market

14:00 - 14:45
A: Option Pricing, Trading & Volatility

XVA Modelling - title tbc

14:00 - 14:40
B: Risk Management: Regulation, CCR & Clearing

Participants

Speaker: Andrey Chirikhin - Head of Structured Credit Quantitative Analytics, Barclays Investment Bank

Ascertaining climate change impact on economics and energy markets

14:00 - 15:30
C: Quant 2.0: Quantifying Climate Change

This extended session will take a closer look at the future impact of climate change on economics, electric power pricing, energy and resources

Participants

Erik Vynckier - Board Member, Foresters Friendly Society and Institute and Faculty of Actuaries

Equity-Credit portfolios modelling: market dynamics, key drivers and modelling choices

14:40 - 15:25
B: Risk Management: Regulation, CCR & Clearing

Products and pricing for a changing market

14:45 - 15:30
A: Option Pricing, Trading & Volatility

SCHEDULE

MAIN CONFERENCE DAY 3 DRAFT AGENDA - 09/12/2021

TIME	A: OPTION PRICING, TRADING & VOLATILITY	B: RISK MANAGEMENT: REGULATION, CCR & CLEARING	C: QUANT 2.0: QUANTIFYING CLIMATE CHANGE
08:00	**08:15** - Morning coffee **08:30** - Pricing European commodity spread options in the non-Markovian approach by the method of Eigenclaims	**08:15** - Morning coffee **08:30** - Recent advances in quantitative financial regulation	**08:15** - Morning coffee **08:30** - The changing face of quant finance research – what are the million dollar questions QuantMinds are now and should in future be researching?
09:00	**09:10** - Market Microstructure - Hawkes Processes and Flash Crashes **09:50** - Session title tbc	**09:10** - Controlling regulatory challenges of algorithmic credit scoring **09:50** - Backtesting: Actual vs perceived challenges	**09:10** - Climate Change Risk : Sense and nonsense **09:50** - The economics, pricing and hedging of ESG-linked derivatives
10:00	**10:30** - Coffee & networking	**10:30** - Coffee & networking	**10:30** - Coffee & networking
11:00	**11:00** - Stochastic (rough) volatility modelling **11:40** - Singular exotic perturbation	**11:00** - Projecting Margins **11:40** - Considering the challenges and opportunities for quants in challenges implementing modern CCR management tools	**11:00** - A quantitative approach to climate-related credit risk, using Shared Socioeconomic Pathways **11:40** - Advances in the Quantitative Modeling of the Energy Market
12:00	**12:20** - Opportunities in FI/FX hedging with the cross currency basis	**12:20** - Polynomial approximation of discounted moments, with applications to bond pricing and credit migration risk	**12:20** - ESG optimal allocation for insurance companies
13:00	**13:00** - Lunch	**13:00** - Lunch	**13:00** - Lunch
14:00	**14:00** - Adapting to an increasing volatile and 'spikey' Market **14:45** - Products and pricing for a changing market	**14:00** - XVA Modelling - title tbc **14:40** - Equity-Credit portfolios modelling: market dynamics, key drivers and modelling choices	**14:00** - Ascertaining climate change impact on economics and energy markets

SESSIONS

TECHNICAL WORKSHOPS - 10/12/2021

Registration, coffee & networking

08:30 - 09:00

Workshop leader's opening remarks

09:00 - 09:05
Fundamentals of Machine Learning in Finance Workshop:

Participants

Workshop leader: John Hull - Maple Financial Professor Of Derivatives & Risk Management, Joseph L. Rotman School of Management at University Of Toronto

Workshop leader's opening remarks

09:00 - 09:05
Hands-On Differentiable Scripting Workshop

Participants

Workshop leader: Uwe Naumann - Professor Of Computer Science, RWTH Aachen University

Introduction and fundamentals of ML in finance

09:05 - 10:30
Fundamentals of Machine Learning in Finance Workshop:

- Types of machine learning
- Why ML is suddenly so popular in finance
- Methodology and terminology
- Training, validation and test sets
- Linear regression with many features: ridge, lasso, elastic regression. Case study
- Bayes classification
- Principal components

Participants

Workshop leader: John Hull - Maple Financial Professor Of Derivatives & Risk Management, Joseph L. Rotman School of Management at University Of Toronto

Algorithmic Differentiation (AD)

09:05 - 10:30
Hands-On Differentiable Scripting Workshop

- recall the maths: tangent and adjoint AD
- SL: a scripting language based on augmented Python
- adjoint code generation rules
- LIVE: adjoint AD of SL by hand-coding

Participants

Workshop leader: Uwe Naumann - Professor Of Computer Science, RWTH Aachen University

Morning coffee & networking break

10:30 - 11:00
Fundamentals of Machine Learning in Finance Workshop:

Morning coffee & networking break

10:30 - 11:00
Hands-On Differentiable Scripting Workshop

Supervised Learning

11:00 - 12:30
Fundamentals of Machine Learning in Finance Workshop:

- Logistic regression. Case study
- Support vector machines
- Neural networks
- Decision trees and random forests
- Bagging and boosting; ensemble
- The variance-bias trade-off

Participants

Workshop leader: John Hull - Maple Financial Professor Of Derivatives & Risk Management, Joseph L. Rotman School of Management at University Of Toronto

Automatic Source-to-Source Transformation

11:00 - 12:30
Hands-On Differentiable Scripting Workshop

- generation of parsers and unparsers
- attribute grammars and syntax-directed translation
- linkage with C++ quant library (using pybind11)
- LIVE: usage of the AAD4SL compiler
- HANDS-ON: experiments with the AAD4SL compiler, e.g.
- inspection / modification of sample code
- addition of C++ subprograms

Participants

Workshop leader: Uwe Naumann - Professor Of Computer Science, RWTH Aachen University

Lunch

12:30 - 13:30
Fundamentals of Machine Learning in Finance Workshop:

Lunch

12:30 - 13:30
Hands-On Differentiable Scripting Workshop

Unsupervised and Reinforcement Learning

13:30 - 15:00
Fundamentals of Machine Learning in Finance Workshop:

- Clustering. Case study
- Reinforcement learning
- Biases and data cleaning
- Image recognition
- Limitations of ML

Participants

Workshop leader: John Hull - Maple Financial Professor Of Derivatives & Risk Management, Joseph L. Rotman School of Management at University Of Toronto

Syntax-Directed adjoint AD of SL**2

13:30 - 15:00
Hands-On Differentiable Scripting Workshop

- attribute grammar for adjoint straight-line SL (SL**2)
- inspection of the AAD4SL**2 compiler source
- C++ runtime support library
- HANDS-ON: experiments with / extension of the AAD4SL**2 compiler, e.g.
- inspection / modification of sample code
- extension of SL^2 syntax
- addition of user-defined intrinsics

Participants

Workshop leader: Uwe Naumann - Professor Of Computer Science, RWTH Aachen University

Afternoon tea & networking

15:00 - 15:30
Fundamentals of Machine Learning in Finance Workshop:

Afternoon tea & networking

15:00 - 15:30
Hands-On Differentiable Scripting Workshop

Other Financial Innovations

15:30 - 17:00
Fundamentals of Machine Learning in Finance Workshop:

- The pattern of innovation
- Blockchain and hashing
- Cryptocurrencies and ICOs
- Roboadvisors, insurtech, and regtech
- Kodak vs. IBM

Participants

Workshop leader: John Hull - Maple Financial Professor Of Derivatives & Risk Management, Joseph L. Rotman School of Management at University Of Toronto

Syntax-Directed adjoint AD of SL

15:30 - 17:00
Hands-On Differentiable Scripting Workshop

- attribute grammar for adjoint SL
- inspection of the AAD4SL compiler source
- HANDS-ON: experiments with / extension of the AAD4SL compiler, e.g.
- inspection / modification of sample code
- extension of SL syntax

Participants

Workshop leader: Uwe Naumann - Professor Of Computer Science, RWTH Aachen University

Workshop leader's closing remarks

17:00 - 17:05
Fundamentals of Machine Learning in Finance Workshop:

Participants

Workshop leader: John Hull - Maple Financial Professor Of Derivatives & Risk Management, Joseph L. Rotman School of Management at University Of Toronto

Workshop leader's closing remarks

17:00 - 17:05
Hands-On Differentiable Scripting Workshop

Participants

Workshop leader: Uwe Naumann - Professor Of Computer Science, RWTH Aachen University

SCHEDULE

TECHNICAL WORKSHOPS - 10/12/2021

QuantMinds International

6-10 December 2021
Hotel Fairmont Barcelona Rey Juan Carlos I
Barcelona

TIME	FUNDAMENTALS OF MACHINE LEARNING IN FINANCE WORKSHOP:	HANDS-ON DIFFERENTIABLE SCRIPTING WORKSHOP
08:00	**08:30** - Registration, coffee & networking	**08:30** - Registration, coffee & networking
09:00	**09:00** - Workshop leader's opening remarks **09:05** - Introduction and fundamentals of ML in finance	**09:00** - Workshop leader's opening remarks **09:05** - Algorithmic Differentiation (AD)
10:00	**10:30** - Morning coffee & networking break	**10:30** - Morning coffee & networking break
11:00	**11:00** - Supervised Learning	**11:00** - Automatic Source-to-Source Transformation
12:00	**12:30** - Lunch	**12:30** - Lunch
13:00	**13:30** - Unsupervised and Reinforcement Learning	**13:30** - Syntax-Directed adjoint AD of SL**2
14:00		
15:00	**15:00** - Afternoon tea & networking **15:30** - Other Financial Innovations	**15:00** - Afternoon tea & networking **15:30** - Syntax-Directed adjoint AD of SL
16:00		
17:00	**17:00** - Workshop leader's closing remarks	**17:00** - Workshop leader's closing remarks