THE 14TH QUANTITATIVE FINANCE CONFERENCE

HOTEL ASTON LA SCALA NICE, FRANCE - 26TH / 27TH / 28TH SEPTEMBER 2018

INVITED & CONFIRMED PRESENTERS

Riccardo Rebonato: Professor of Finance, EDHEC Business School
Vladimir Piterbarg
Vasclav Glukhov: Executive Director, Linear Quant Research, Global Equities, J.P. Morgan
Jesper Andreasen: Global Head Of Quantitative Research, Saxo Bank
Andrey Chirikhin: Founder, Quantitative Recipes
Michael Pykhtin: Manager, Quantitative Risk, Federal Reserve Board
Dominique Bang: Director, Head of IR Vanilla Modelling, Bank of America Merrill Lynch
Miquel Noguer Alonso: Adjunct Assistant Professor, Columbia University
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
Julien Guyon: Senior Quant, Bloomberg L.P.
Ignacio Ruiz: Founder & CEO, MoCaX Intelligence
Alexander Antonov: Director, Standard Chartered Bank
Peter Kohl-Landgraf: XVA Management, DZ Bank
Saeed Amen: Founder, Cuemacro
Antoine Savine: Quantitative Research, Danske Bank
Andrea Pallavicini: Head of Equity, FX and Commodity Models, BANCA IMI
Christian Fries: Head of Model Development, DZ Bank
Andrew Green: Managing Director and XVA Lead Quant, Scotiabank
Peter Jaeckel: Deputy Head Of Quantitative Research, VTB Capital
Juliusz Jablecki: Divisional Head, Narodowy Bank Polski
Uwe Naumann: Professor for Computer Science, RWTH Aachen University
Martin Engblom: Co-CEO triCalculate, TriOptima, an NEX Group Company
Assad Bouayoun: Senior XVA Quantitative Consultant, HSBC
Gilles Artaud: Head of Model Internal Audit, Group Crédit Agricole SA
Paul Bilokon: Founder, CEO, Thalesians & Senior Quantitative Consultant, BNP Paribas
Sheir Yarkoni: Data Scientist, D-Wave Systems Inc

WHEN 2 COLLEAGUES ATTEND THE 3RD GOES FREE!
REGISTER TO THE MAIN CONFERENCE & WORKSHOP AND RECEIVE A £150 DISCOUNT

SPONSORS

WBS
IMPORTANT NOTES

Main Conference presentation files on USB memory sticks will be provided on arrival. The Main 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 conference venue to view presentations on laptops and mobile devices.

CONFERENCE BOOKINGS: DISCOUNT STRUCTURE

• When 2 colleagues attend the 3rd goes free!
• Super Early Bird Discount: 25% Until 18th May
• Early Bird Discount: 20% Until 20th July
• Early Bird Discount: 10% Until 7th September
• Main Conference + Workshop (£150 Discount)
• 70% Academic Discount (FULL-TIME Students Only)

CPD CERTIFICATION

You will be able to receive up to 18 CPD points (17 hours and 45 minutes of structured CPD) for attending this event.

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

PRE-CONFERENCE WORKSHOP DAY
WEDNESDAY 26TH SEPTEMBER:


2. Machine Learning Applications in the XVA Space by Andrew Green: XVA Lead Quant, Scotiabank

MAIN CONFERENCE STREAMS

THURSDAY 27TH SEPTEMBER - DAY ONE:
• XVA, MVA & Initial Margin
• Machine Learning & Quantum Computing Techniques
• Volatility & Modelling Techniques

FRIDAY 28TH SEPTEMBER - DAY TWO:
• XVA, AAD, MVA & Initial Margin
• Machine Learning & Quantum Computing Techniques
• Volatility & Modelling Techniques

As always, delegates are not restricted to attend single streams on the main conference. You have the opportunity to hop around the different streams and attend the presentations that benefit you the most.

Stream presentation times will run concurrently with each other.

CONFERENCE LOCATION:

Hotel Aston La Scala
12 avenue Félix Faure
06000 Nice
France
Tel: +39 (0) 4 9217 5300
Website: www.hotel-aston.com

GALA DINNER - THURSDAY 27TH SEPTEMBER, 20:00

PLAGE BEAU RIVAGE, NICE
OUTLINE

- Using machine learning in the new financial markets big data landscape
- Big Data in Finance Landscape
- Infrastructure and technology
- Modern data analysis - Structured and Unstructured Data & New Models
- Classical and advanced models
- Machine Learning models in practice
- Machine learning robust modeling
- The future of machine learning in finance

Big Data in Finance Landscape

- Big data in finance landscape: Financial modeling, data governance, integration, NoSQL, batch and real-time computing and storage
- Infrastructure and technology
- New data sources
- Modern data analysis: Structured / Unstructured data and new models

Machine Learning Models

- Supervised learning
- Unsupervised learning
- Reinforcement learning
- Deep learning
- Advanced machine learning models

Machine learning in finance - Practice

- Momentum and Mean Reversion
- Sentiment Analysis
- Asymmetric Trading Strategies
- Non Linear Multi-Factor Models
- High Frequency Trading
- Advanced Machine Learning

Machine learning in finance - Opportunities and challenges

- Algo-Grading 101
- Interpretation
- Data mining biases: overfitting, survivorship and data-snooping
- Robust trading strategies
- The future of machine learning in finance
PRE-CONFERENCE WORKSHOP: WEDNESDAY 26TH SEPTEMBER

DAY SCHEDULE: 09:00 – 17:30

TUTOR BIOGRAPHY

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.
PRE-CONFERENCE WORKSHOP: WEDNESDAY 26TH SEPTEMBER

MACHINE LEARNING APPLICATIONS IN THE XVA SPACE
BY ANDREW GREEN: XVA LEAD QUANT, SCOTIABANK

DAY SCHEDULE: 09:00 – 17:30

<table>
<thead>
<tr>
<th>Foundations: CVA, DVA and FVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVA &amp; DVA by Replication</td>
</tr>
<tr>
<td>Credit Mitigants</td>
</tr>
<tr>
<td>FVA by Replication</td>
</tr>
<tr>
<td>FVA &amp; DVA (overlaps)</td>
</tr>
<tr>
<td>FVA in pricing and accounting</td>
</tr>
<tr>
<td>A brief tour of the XVA Monte Carlo engine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Margin and XVA</td>
</tr>
<tr>
<td>MVA by Replication</td>
</tr>
<tr>
<td>MVA for VaR-type IM (CCPs)</td>
</tr>
<tr>
<td>MVA for SIMM-IM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is Capital?</td>
</tr>
<tr>
<td>KVA by Replication</td>
</tr>
<tr>
<td>KVA vs Hurdle Rates</td>
</tr>
<tr>
<td>Which measure?</td>
</tr>
<tr>
<td>The Cost of Capital</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Introducing Machine Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of machine learning problems:</td>
</tr>
<tr>
<td>Motivation I: Multivariate Linear Regression</td>
</tr>
<tr>
<td>Supervised learning</td>
</tr>
<tr>
<td>Regression problems</td>
</tr>
<tr>
<td>Classifier problems</td>
</tr>
<tr>
<td>Unsupervised learning</td>
</tr>
<tr>
<td>Motivation II: Logistic Regression</td>
</tr>
<tr>
<td>Bias and Variance</td>
</tr>
<tr>
<td>Regularization</td>
</tr>
<tr>
<td>Neural Networks</td>
</tr>
<tr>
<td>Activation functions</td>
</tr>
<tr>
<td>Geometry</td>
</tr>
<tr>
<td>Forward and backpropagation</td>
</tr>
<tr>
<td>Initialization</td>
</tr>
<tr>
<td>Deep Learning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit Curve Mapping as a Machine Learning Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dealing with illiquid counterparties in XVA</td>
</tr>
<tr>
<td>Key Requirements of the Map</td>
</tr>
<tr>
<td>Trading Requirements</td>
</tr>
<tr>
<td>Regulatory Requirements: Basel III &amp; FRTB-CVA</td>
</tr>
<tr>
<td>Classical Methods</td>
</tr>
<tr>
<td>Classifier Approach</td>
</tr>
<tr>
<td>Regression Approach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A tour of XVA ML Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimising MVA</td>
</tr>
<tr>
<td>Dimension Reduction: PCA &amp; Autoencoders</td>
</tr>
</tbody>
</table>

TUTOR BIOGRAPHY

Andrew Green: Managing Director and XVA Lead Quant, Scotiabank

Andrew Green is a Managing Director and lead XVA Quant at Scotiabank in London. Prior to joining Scotiabank, Andrew held roles as a quantitative analysis in several different banks in London. He is the author of XVA: Credit, Funding and Capital Valuation Adjustments, published by Wiley.
MAIN CONFERENCE DAY ONE – THURSDAY 27TH SEPTEMBER

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

09:00 – 09:45  KEYNOTE: RICCARDO REBONATO: PROFESSOR OF FINANCE, EDHEC BUSINESS SCHOOL

A FINANCIALLY MOTIVATED EXTENSION OF THE HESTON MODEL FOR EQUITIES AND FX

• What Heston does well, and where it fails
• How to fix the problems in a financially justifiable manner
• Simultaneous fitting of the smile for many expires with constant parameters
• Approximate analytic expressions for the Extended Heston
• How good are the approximations?
• How well do they fit the market?
• What can we learn about the market price of volatility risk?

09:45 – 10:30  PANEL: MACHINE LEARNING, AI & QUANTUM COMPUTING IN QUANTITATIVE FINANCE

Moderator:
• Paul Bilokon: Founder, CEO, Thalesians, Senior Quantitative Consultant, BNP Paribas

Panelists:
• Miquel Noguer Alonso: Adjunct Assistant Professor, Columbia University
• Saeed Amen: Founder, Cuemacro
• Alexei Kondratyev: Managing Director, Head of Data Analytics, Standard Chartered Bank
• Jan Novotny

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
10:00 – 10:30  FUNDING VALUE ADJUSTMENTS
by Christoph Burgard: Global Head, C:
MANAGING, CALCULATING & PRICING CVA ACROSS PORTFOLIOS
STREAM B:
THE EVOLUTION OF FUNDING VALUE ADJUSTMENTS

2. Stochastic Automatic Differentiation:
Methodology, Deutsche Bank
Development, DZ Bank
by Christian Fries: Head of Model

5. Exact and Fast MVA
(with or without AAD)

6. (with or without AAD)

Recap

11:00 – 11:45  DEEP LEARNING IN FINANCE – LSTN’S
by Miquel Noguer Alonso: Adjunct Assistant Professor, Columbia University
• Modern Data Analysis
• Times Series Models Univariate
• Linear Factor Models
• Multivariate Time Series
• Modern Financial Engineering
• Long Short Term Memory Networks
• Results
• Conclusions

11:45 – 12:30  MV A USING MACHINE LEARNING TECHNIQUES
by Gilles Artaud: Head of Model Internal Audit, Group Crédit Agricole
• Initial Margin: why and what?
• IM Impacts on pricing (on different valuation adjustments)
• Brute force computations; more elaborate techniques: AAD, American Monte Carlo
• How can Machine Learning help?

12:30 – 13:45 LUNCH

11:00 – 12:30  TOUGH VOL
by Jesper Andreasen: Global Head Of Quantitative Research, Saxo Bank
• Fractional Brownian motion and analogies with interest rate modeling
• Fractional volatility: definition, motivation and empirical findings
• Expansions and short maturity limits for skew, smile, delta and digitals
• Connection with Hawkes processes and market micro structure models
• Numerical implementation

11:45 – 12:30  VALUE AND OTHER REWARDED FACTORS FOR SMART BETA IN FIXED INCOME
by Riccardo Rebonato: Professor of Finance, EDHEC Business School
• “Where there is a risk there is a reward” – is this true?
• Defining the value factor for fixed income.
• Extracting value using an economically justifiable proxy
• Are risks other than duration rewarded in the yield curve?
• Extracting compensation for slope risk using conditional strategies
• Creating diversified smart-beta portfolio with exposure to value, level and slope factors
13:45 – 14:30  FROM ARTIFICIAL INTELLIGENCE TO MACHINE LEARNING, FROM LOGIC TO PROBABILITY
by Paul Bilokon: Founder, CEO, Thalesians, Senior Quantitative Consultant, BNP Paribas

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 viewworlds.

14:30 – 15:15  QUANTUM ANNEALING FOR MULTI-PERIOD XVA REVERSE STRESS TESTING
by Assad Bouayoun: Senior XVA Quantitative Consultant, HSBC & Sheir Yarkoni: Data Scientist, D-Wave Systems Inc

- Modelling
  - XVA reverse stress testing formula
  - XVA reverse stress testing as a QUBO problem (Quadratic Unconstrained Binary Optimisation)
  - Generalisation to multi-period case

- Optimisation using annealing
  - Quantum annealing
  - Simulated annealing

- Applications
  - Simple portfolio of swaps
  - Firm level management

13:45 – 14:30  "LOCAL-STOCHASTIC VOLATILITY FOR VANILLA MODELLING: A TRACTABLE AND ARBITRAGE FREE APPROACH"
by Dominique Bang: Director, Head of Interest Rates Vanilla Modelling, London, Bank of America Merrill Lynch

- Mixing of Local and Stochastic Volatilities via Lamperti transform: replication formulae
- Normal SABR: Jamshidian’s Trick and measure change for accurate option pricing proxies. Application to SABR Local Vol
- Heston Local Vol

14:30 – 15:15  BERMUDAN SWAPTIONS MADE SIMPLE
by Juliusz Jabłecki: Divisional Head, Narodowy Bank Polski

- Equity-like local volatility model for interest rate underlyings
- Approximate swap rate diffusion with “short rate” and “dividend”
- Pricing European and Bermudan swaptions without intensive yield curve modeling using techniques borrowed from the equity space
- Numerical examples
**15:45 – 16:30** ADVANCED TECHNIQUES FOR SIMM-MVA CALCULATIONS
by Alexandre Antonov, Director, Standard Chartered Bank

- Initial margin (IM) & its projection to the future; MVA as a future IM interest
- Complexity of the MVA: one needs (exotic) portfolio sensitivities calculation for each scenario and observation data
- Particular difficulties with structured products: brute force MVA calculation time is unacceptably long

**16:30 – 17:15** JOHNSON DISTRIBUTIONS IN FINANCE - APPLICATIONS TO DYNAMIC INITIAL MARGIN ESTIMATION (JLSMC METHOD)
by Jörg Kienitz: Partner & Nikolai Nowaczyk: Consultant, Quaternion Risk Management

A further advantage of the new approach is that it only relies on the quantities required for any exposure or XVA calculation.

- Dynamic Initial Margin and Methods for its Calculation
- Monte Carlo Simulation and Least Squares Regression
- Johnson Distributions
- The JLSMC Method
- Backtesting / Benchmarking

[FULL DETAILS AVAILABLE ONLINE]

**15:45 – 16:30** SECOND QUANTIZATION OF BANKS
by Christoph Burgard: Head of Risk Analytics For Global Markets, Bank of America Merrill Lynch

- A Practical Case From the Field With ING and GridGain

**16:30 – 17:15** MODERN INFRASTRUCTURE FOR MODERN ANALYTICS
by Tim Carley: Managing Director EMEA, GridGain & Tim Wood: Head, HPC & Model Integration, ING Financial Markets

- The economic purpose of composite options
- Turning a multiplication into a subtraction
- Generic bilinear option valuation: lots of digitals!
- Solid bivariate cumulative normals
- Does it work?
08:30 – 09:00  MORNING WELCOME COFFEE

09:00 – 09:45  KEYNOTE: VACLAV GLUKHOV, PHD
EXECUTIVE DIRECTOR, LINEAR QUANTITATIVE RESEARCH, GLOBAL EQUITIES, J.P. MORGAN

TOPICS IN SELF-LEARNING AGENTS AND TRADITIONAL QUANTITATIVE MODELS IN FINANCE

• What can we draw from our experience of training and running an industry first self-learning agent for electronic order execution?
• Will traditional hand-crafted heuristic- and quant-based execution algorithms go extinct within 10 years?
• Does the success of ML and AI agents in finance indicate the eventual demise of traditional quantitative models?
• Practical aspects of using feeder models and heuristics in AI agents for trading applications.
• Do we have practical solutions for the equivalence puzzle in Neural Nets

09:45 – 10:30  PANEL: XVA, AAD, INITIAL MARGIN & FRTB

Moderator:
• Alexandre Antonov: Director, Standard Chartered Bank

Panelists:
• Andrew Green: Managing Director and XVA Lead Quant, Scotiabank
• Martin Engblom: Co CEO triCalculate, TriOptima, a NEX Group Company
• Ignacio Ruiz: Founder & CEO, MoCaX Intelligence
• Antoine Savine: Quantitative Research, Danske Bank
• Assad Bouayoun: Senior XVA Quantitative Consultant, HSBC

Topics:
• Initial Margin, a push for more model standardization? Good or bad?
• How do you interpret the regulatory requirements to validate and monitor SIMM, and how would a firm best go about meeting those requirements?
• SIMM relies on counterparts calculating their own sensitivities. Do the panelists foresee that causing any problems meeting requirements or additional costs?
• Discuss Implementing SIMM for Non Cleared Initial Margin Rules
• Explore the interaction between MVA and XVAs:
  • What does MVA mean for XVA overall? Can you simplify the valuation adjustments?
  • Understand the impacts of initial margin, bi-lateral initial margin and MVA on business models
  • Is it possible to ensure transparency of derivative pricing calculation to reduce disputes

XVA & Machine Learning:
• Discuss the existing and potential applications of machine learning in XVA

Discuss the Impact of FRTB on XVA’s:
• How will the latest proposed regulations impact CVA calculations
• Review what are the most important factors to take into account when calculating the new CVA
• Calculating & Implementing FRTB CVA. How will it affect banks’ internal modelling for counterparty risk and risk management?

10:30 – 11:00  MORNING COFFEE AND NETWORKING OPPORTUNITIES
08:20 – 09:00 REGISTRATION

09:00 – 10:30 FUNDING VALUE ADJUSTMENTS AND BALANCE SHEET by Christoph Burgard: Global Head of CVA, Co-CEO TriCalculate, TriOptima, a NEX Group Company

- Introduction to the Probability Matrix Method
- Simulating IM using full SIMM and CCP formulas
- Practical examples and benchmarks
- Live demo

10:30 – 10:50 STREAM A: MANAGING, CALCULATING & PRICING CVA ACROSS PORTFOLIOS
by Martin Engblom: Co-CEO triCalculate, Paribas

- The real case of 30 day VIX: Inversion of convex ordering of VIX2 and local VIX2
- Inversion of convex ordering using fast mean-reverting and highly volatile volatility
- Inversion of convex ordering using rough volatility

11:00 – 11:45 MULTIVARIATE TIME SERIES MODELLING: LINEAR MODELS VS MACHINE LEARNING by Andrey Chirikhin: Founder at Quantitative Recipe

- The ultimate goal of practical time series analysis is extraction of cross sectional and serial dependency so as to end up with i.i.d. residuals.
- Various linear techniques, routed at Box-Jenkins are in place.
- Machine learning and NN can be used to create a non-parametric and non-linear multivariate time series modelling framework.
- We contrast multivariate and multi-step regressive approaches with NN methods for modelling multivariate autoregressive processes (e.g. swap rates or volatilities).

11:45 – 12:30 DEVELOPING AN FX TCA LIBRARY IN PYTHON by Saeed Amen: Founder, Cuemacro

Abstract: We give a brief introduction to TCA (transaction cost analysis) in FX, talking about the main motivation behind doing TCA. We discuss some of the approaches used by traders for doing TCA, weighing up the pros and cons of using in-house tools or external ones. We talk about our experiences developing a Python based FX TCA library, describing some of the challenges and their solutions, such as ways of speeding up Python (including parallelisation), designing a GUI and so on. In particular, we discuss some of the technologies used, in particular the various Python libraries we used.

11:00 – 11:45 ON THE JOINT CALIBRATION OF SPX AND VIX OPTIONS by Julien Guyon: Senior Quant, Bloomberg L.P.

- Past attempts
- New approach for continuous models on the SPX
- The case of instantaneous VIX: Necessary and sufficient condition for joint calibration
- The real case of 30 day VIX: Inversion of convex ordering of VIX2 and local VIX2
- Inversion of convex ordering using fast mean-reverting and highly volatile volatility
- Inversion of convex ordering using rough volatility

11:45 – 12:30 “SMILE MODELLING IN COMMODITY MARKETS” by Andrea Pallavicini: Head of Equity, FX and Commodity models, BANCA IMI

- Derivatives on Commodity Futures
- Fast Calibration of Future Option Smile
- Forward Curve and Volatility Smile Dynamics
- Numerical Investigations in Realistic Settings

12:30 – 13:45 LUNCH
Main Conference Day Two – Friday 28th September

12:30 – 13:30 Lunch

13:30 – 14:15 Low-memory Algorithmic Adjoint Propagation
by Uwe Naumann, Professor for Computer Science, RWTH Aachen University
- Recall: Tape-based algorithmic adjoints
- Low development effort adjoints by taping to disc
- Separation of randomly and sequentially accessed data
- Minimisation of size of randomly accessed data

13:30 – 14:15 Vectorised Approach to Tree-Based Machine Learning Problems
by Jan Novotny

13:30 – 14:15 Optimal Investment
by Vladimir Piterbarg

13:45 – 15:00 Algorithmic Adjoint & GPU Solution and Performance Figures
by Andrew Green: Managing Director and XVA Lead Quant, Scotiabank

14:15 – 15:00 Portfolio Optimisation with Adiabatic Quantum Computing
by Alexei Kondratyev: Managing Director, Head of Data Analytics, Standard Chartered Bank
An inside glimpse into how quantum computing is starting to be applied to finance

14:15 – 15:00 "Quantifying Model Performance"
by Alexandre Antonov, Director, Standard Chartered Bank
- Introduction: known issues with models
- Payoff replication quality as an objective measure of the hedging performance of a model
- Hedging quality criteria and its numerical expression via regression
- Numerical experiments
- Conclusion: a new model performance criteria for the back-testing

15:00 – 15:15 Afternoon Break and Networking Opportunities

15:15 – 16:00 Closing Presentation: Neocybernetics
by Paul Bilokon: Founder, CEO, Thalesians & Senior Quantitative Consultant, BNP Paribas

Abstract: Cybernetics was introduced by Norbert Wiener as “the scientific study of control and communication in the animal and the machine”. Its origins are intimately related to those of computing and artificial intelligence (AI). The AI Winters of 1960s and 1970s have had a negative impact on cybernetics and the field has experienced a decline. There were also other reasons, specific to cybernetics, which contributed to that decline. The recent resurgence of AI as deep learning is a good enough reason to review cybernetics and revive it – as neocybernetics. We shall argue that finance practitioners (who invoke the spirit of Wiener each time they write down dW, and they write it down a lot!) are the best people to do this, and how we can benefit fields outside finance: from robotics to medicine.

End of Conference
MoCaX Intelligence is a new-to-the-market algorithm that accelerates existing Risk Engines without the need for complex systems development or expensive hardware upgrades. MoCaX removes the pricing step bottle-neck that often uses over 90% of computational effort in existing engines and increases capabilities by several orders of magnitude with no loss of accuracy.

MoCaX builds on the new Algorithmic Pricer Acceleration (APA) and Algorithmic Greeks Acceleration (AGA) methods. APA syntheses your existing pricers and creates an accelerated version of them. Even your very slowest and complex pricer, passed through MoCaX, will return the same results (down to 10-15 precision) ultra-fast (up to a few nanoseconds). For example, this enables highly accurate Monte Carlo within Monte Carlo in an instant.

AGA is a further enhancement, creating also an ultra-accurate, ultra-fast function of the Greeks of your pricers, even when you do not have an expression for them. This enables for example exact MVA and MVA sensitivity calculations.

APA and AGA work for any pricing function: analytical, tree or MC based; and with any asset class.

With one million accurate Price or Greek values in a few milliseconds, MoCaX delivers:

- massive acceleration of your current simulations
- previously-impossible simulations, e.g. accurate and ultra-fast MVA via real Dynamic SIMM
- potential for trades that had been too slow to simulate, e.g. non-linear products, barriers, Bermudans
- enhanced regulatory approval, because MoCaX delivers perfect pricing and widens IMM product scope

MoCaX Intelligence: the next step forward.

Please ask for a free version of MoCaX so you can test it for yourself.

mocaxintelligence.com  |  i.ruiz@iruiztechnologies.com

Over the years, financial professionals around the world have looked to Wiley and the Wiley Finance series with its wide array of bestselling books for the knowledge, insights, and techniques that are essential to success in financial markets. As the pace of change in financial markets and instruments quickens, Wiley continues to respond.

With critically acclaimed books by leading thinkers on value investing, risk management, asset allocation, and many other critical subjects, the Wiley Finance series provides the financial community with information they want. Written to provide professionals and individuals with the most current thinking from the best minds in the industry, it is no wonder that the Wiley Finance series is the first and last stop for financial professionals looking to increase their financial expertise.

www.wiley.com
www.wileyglobalfinance.com
The Numerical Algorithms Group (NAG) are experts in numerical algorithms, software engineering and high-performance computing. They have served the finance industry with numerical software and consulting services for over four decades because of their outstanding product quality and technical support. Specifically, relevant to the finance industry, NAG pioneer in the provision of the NAG Library – numerical and statistical components ideal for building Quant Libraries, Risk Applications and the like. NAG also provides best-in-class C++ operator-overloading AD tools for CPU and GPU called dco (derivative computation through overloading) and dco/map (dco meta adjoint programming). The NAG Library and AD tools are used by many of the largest Investment Banks where they are embedded in Quant Libraries and XVA applications. As a not-for-profit company, NAG reinvests surpluses into the research and development of its products, services, staff and its collaborations.

www.nag.com

TriOptima provides risk management services for OTC derivatives, reducing costs and eliminating operational and credit risk through a range of services.

triResolve for proactive reconciliation of OTC derivative portfolios, repository validation and dispute resolution

triReduce for multilateral portfolio compression services across OTC product types

triBalance for rebalancing counterparty risk exposure between multiple CCPs and bilateral relationships

triCalculate for the complete spectrum of counterparty credit risk analytics leveraging state-of-the-art massively parallel computing devices


www.trioptima.com

GridGain Systems is revolutionizing real-time data access and processing by offering an in-memory computing platform built on Apache® Ignite™. GridGain solutions are used by global enterprises in banking, investment management, insurance, fintech, software, telecom and other major sectors, with a client list that includes ING, Sberbank, Wellington Management, Finasta, IHS Markit, and Huawei. GridGain delivers unprecedented speed and massive scalability to both legacy and greenfield applications. Deployed on a distributed cluster of commodity servers, GridGain software can reside between the application and data layers (RDBMS, NoSQL and Apache® Hadoop®), requiring no rip-and-replace of the existing databases, or it can be deployed as an in-memory SQL database. GridGain is the most comprehensive in-memory computing platform for high-volume ACID transactions, real-time analytics, web-scale applications, continuous learning and HTAP.

www.gridgain.com
Welcome to The Machine Learning Institute Certificate in Finance (MLI)

Start Date: Tuesday 2nd October 2018

Please note Cohort 1 has limited delegate places and an introductory fee and discount structure.

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.

www.mlinstitute.org

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
By completing this form you are accepting the terms and conditions of WBS Training’s cancellation and data policies.

To Register please e-mail the completed booking form to:

sales@wbstraining.com

HOTEL CONTACT INFORMATION:
Hotel Aston La Scala
12 avenue Félix Faure
06000 Nice
France
Tel: +39 (0)4 9217 5300
Email: reservation@hotelastonlascala.com

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 of this form the client hereby enters into an agreement stating that if a cancellation is made by fax or 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 course 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).

70% Academic Discount / FULL-TIME Students Only