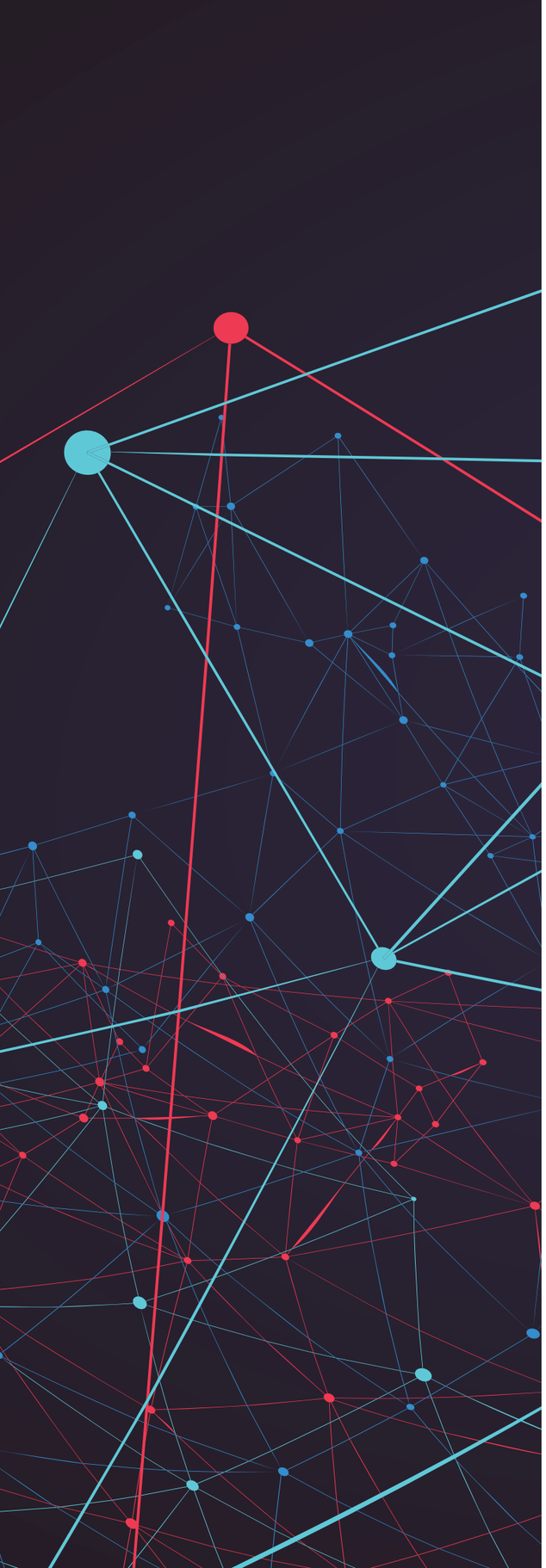
MLI
Machine Learning Institute Certificate

Be part of the future of Quantitative Finance

Cohort 1 starts: Tuesday 2nd October 2018

FORTE MARKETS

Official partner for MENA - regional pricing available



Contents

Join our MLI group on LinkedIn

@MLIcert

Introduction

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.

Benefits

World class professional qualification

- The MLI is a graduate-level professional qualification, internationally renowned and a solid demonstration of individual commitment to career development.

Qualify from anywhere in the world

- Six-month part-time global programme delivered twice a year.
- All lectures streamed live over the Internet and recorded. Lectures can be viewed at any time.
- Study while working: career-enhancing qualification that can be taken worldwide.

Practitioner orientated

- The MLI delivers learning of practical value, developed and taught by highly experienced practitioners.

Expert teaching and support

- The MLI Faculty is an acclaimed team of instructors combining respected academics and renowned practitioners, all specialists in the field of Machine Learning, Data Science and Artificial Intelligence. The Faculty provides mentoring and support during the course.

Start Date: Tuesday 2nd October 2018

FORMAT: 1 live lecture per week over 24 weeks,

Approximately 2 hour lecture (streamed live globally).

TOTAL LEARNING HOURS: 301

LOCATION: Central London / Streamed live globally.

Internet-based student-faculty forum and seminars. This is a truly global qualification with weekly world-wide interaction via WebEx during lectures.

All lectures will be recorded and stored in the student's personalised portal.

MLI LEVELS 1 & 2: The MLI offers two flexible study options so you can decide how to complete the course:

FULL COURSE: Complete the 6 modules in 6 months.

LEVEL 1 & LEVEL 2 (payable separately).

Complete the 6 modules in 2 x 3 month levels.

Your MLI Journey

Information evening

- Open Evening: Tuesday 21st August 2018 at 17:30, in the City of London
- Discuss course details
- Live webcasts available
- Recorded session available at mlinstitute.org

Apply

Apply online or via the registration form and the Admissions Team will confirm acceptance within 3 working days

Prepare

At the start of the certificate programme candidates are offered intensive preparation sessions which cover the technical foundations required in order to follow and fully benefit from the course lectures. These primers include a Primer in Mathematical Methods, and a Primer in Python Programming for Machine Learning.

Learn

LAB ASSIGNMENTS:

Throughout the programme, candidates work on 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.

FINAL EXAMINATION:

Tuesday 9th April 2018. Candidates will sit a formal examination on a laptop. The exam is held in London for UK students and using our global network of examination centres for overseas students.

FINAL PROJECT:

Friday 10th May 2018. At the end of the programme, candidates apply the theoretical and practical skills acquired to a real world application within the financial services industry. The assessment will take into account the quality and the originality of the work as well as the clarity of its presentation.

MLI Machine Learning Institute Certificate

MODULE ONE
Supervised Learning

MODULE TWO
Unsupervised Learning

MODULE THREE
Practitioners Approach to ML

MODULE FOUR
Neural Networks

MODULE FIVE
Deep Learning

MODULE SIX
Advanced Topics

Programme Delivery

The MLI is at the forefront of interactive online learning, which enables students from anywhere in the world to enrol on the programme. We offer a high quality and comprehensive learning portal giving 24-hour access to all the lectures and study materials.

PORTAL:
All classes are recorded and placed on the MLI portal. Every student is provided with their own online account enabling them to access:

- LIVE LECTURES
- RECORDED CORE LECTURES
- LAB ASSIGNMENTS
- REAL-WORLD EXERCISES AND CASE STUDIES
- AD HOC WEBINARS

Student profiles
Quantitative Analysts
IT
Quantitative trading
Insurance
Model validation
Risk management
Equity Traders
High Frequency Traders

Academic backgrounds
Computing
Mathematics
Physics
Banking and Finance
Engineering

Course Syllabus

LEVEL 1 – MACHINE LEARNING INSTITUTE CERTIFICATE IN FINANCE

Dates:
- Primers start week commencing: 17th September 2018
- Level 1 Starts: Tuesday 2nd October 2018

PRIMERS

At the start of the certificate programme, candidates are offered intensive preparation sessions which cover the technical foundations required in order to follow and fully benefit from the course lectures.

Although these sessions are optional, they are highly recommended. For candidates with the required background, they can serve as a timely refresher ahead of the main module lectures.

PRIMER IN MATHEMATICAL METHODS

This course provides a rigorous introduction to the key mathematical concepts and methods required during the machine learning lessons. The following areas are covered, with a clear focus on the concepts and techniques most used in machine learning:

- Probability
- Statistics
- Linear Algebra
- Optimisation Methods

PRIMER IN PYTHON PROGRAMMING FOR MACHINE LEARNING

This intensive hands-on session introduces the Python programming language and the most useful scientific computing tools it offers.

The scope includes:
- Python fundamentals
- Data structures
- Interactive Notebooks
- Numpy
- Pandas
- Plotting tools
- Scikit-learn
- Overview of machine learning packages

Level 1 Starts: Tuesday 2nd October 2018

MODULE 1 – SUPERVISED LEARNING

In this module, the concepts related to algorithmically learning from data are introduced. The candidates are given an early taste of a supervised machine learning application before going through the fundamental building blocks starting from linear regression and classification models to kernels and the theory underpinning support vector machines and then to the powerful techniques of ensemble learning.

The module includes a combination of theoretical and hands-on lab assignments.

MODULE 2 – UNSUPERVISED LEARNING

An important and challenging type of machine learning problems in finance is learning in the absence of 'supervision', or without labelled examples.

In this module, we first introduce the theoretical framework of hidden variable models. This family of models is then used to explore the two important areas of dimensionality reduction and clustering algorithms.

There are theoretical and applied lab assignments with financial data sets.

MODULE 3 – PRACTITIONERS APPROACH TO ML

This module focuses on the practical challenges faced when deploying machine learning models within a business context.

Each session in this module covers a specific real life problem and provides the candidates with guidance and insight about the way to approach the various steps within the model development cycle, from data collection and examination to model testing and validation and results interpretation and communication.

LAB ASSIGNMENTS

Throughout the programme, candidates work on 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 data sets and problems are selected to be representative of the applications encountered in finance. The following are examples of the topics to be covered in the lab and project work:

- Quantitative Trading Strategies
- Market News and Sentiment Analysis
- Algorithmic Trading
- High Frequency Strategies
- Outlier Detection
- Market Risk Management
- Credit Rating
- Default Prediction
- Portfolio Management ('Robo-Advisors')
- Fraud Detection and Prevention

LEVEL 2 – MACHINE LEARNING INSTITUTE CERTIFICATE IN FINANCE

Dates:
- Level 2 Starts: Tuesday 15th January 2019
- Examination: Tuesday 30th April 2019
- Final Project Hand in Friday 31st May 2019
- Level 2 Starts: Tuesday 15th January 2019

MODULE 4 – NEURAL NETWORKS

Neural Network models are an important building block to many of the latest impressive machine learning application on an industrial scale.

This module aims to develop a solid understanding of the algorithms and, importantly, an appreciation for the main challenges faced in training them. The module starts with the perceptron model, introduces the key technique of backpropagation before exploring the various regularisation and optimisation routines. More advanced concepts are then covered in relation to the next module on Deep Learning.

Although we cover the theoretical foundations of Neural Networks, the emphasis of the assignments will be on hands-on lab work where the candidates are given the opportunity to experiment with the techniques studied on financial and non-financial data sets.

MODULE 5 – DEEP LEARNING

Deep Learning has been the driving engine behind many of the recent impressive improvements in the state of the art performance in large scale industrial machine learning applications.

This module can be viewed as a natural follow-up from the previous module on Neural Networks. First, the background and motivations for transitioning from traditional networks to deeper architectures are explored. Then the module covers the deep feedforward architecture,regularisation for deep nets, advanced optimisation strategies and the CNN Architecture.

The assignments of this module will be highly practical with ample opportunity to experiment on financial and non-financial data sets and become familiar with the latest open-source deep learning frameworks and tools.

MODULE 6 – ADVANCED TOPICS

In this module, candidates will be exposed to a selection of some of the latest machine learning and AI topics relevant to the financial services industry.

Financial timeseries data presents particular challenges when it comes to applying machine learning techniques. These challenges and approaches to deal with them will be covered.

Also, building on the previous module, deep models for timeseries based on the RNN architecture and Long Short-Term Memory will be presented.

Since the lectures are delivered by industry practitioners from leading institutions, the candidates will be encouraged to use the solid technical foundations built throughout the programme to interact and confidently debate about the problems and approaches presented.

LAB ASSIGNMENTS

Throughout the programme, candidates work on 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 data sets and problems are selected to be representative of the applications encountered in finance. The following are examples of the topics to be covered in the lab and project work:

- Quantitative Trading Strategies
- Market News and Sentiment Analysis
- Algorithmic Trading
- High Frequency Strategies
- Outlier Detection
- Market Risk Management
- Credit Rating
- Default Prediction
- Portfolio Management ('Robo-Advisors')
- Fraud Detection and Prevention

FINAL EXAMINATION

Date: Tuesday 30th April 2019

Candidates will sit a formal 3-hour examination on a laptop. The exam is held in London for UK students and using our global network of examination centres for overseas students.

FINAL PROJECT

Date: Friday 31st May 2019

At the end of the programme, candidates apply the theoretical and practical skills acquired to a real world application within the financial services industry.

The assessment will take into account the quality and the originality of the work as well as the clarity of its presentation.

The MLI Faculty

Head of Faculty

Abdel Lantere

Quantitative Consultant, HSBC

Abdel Lantere is a data scientist and quantitative consultant. He has extensive experience in the financial industry spanning over 15 years covering pricing, risk and quantitative trading models. He holds a master's degree in Machine Learning from University College London and a DEA in Probability Theory and Finance from UPMC Paris.

Lawrence Edwards

Executive Director and Head of CRB ML/AI, Morgan Stanley

Extensive experience in quantitative trading and using machine learning algorithms in the context of alpha generation. He holds a Master of Science – MS, Mathematical Finance from the University of York. Lawrence has over 15 years of experience in the financial markets at proprietary trading and leading investment banks. *To be confirmed.*

Ediz Ozkaya

Head of AI Labs, Goldman Sachs

Ediz held senior positions at leading investment banks in the area of high frequency and quantitative trading strategies. He has in depth and innovative experience in the application of state of the art machine learning techniques and the successful implementation of quantitative trading the successful implementation of quantitative trading strategies. *To be confirmed.*

Tristan Fletcher

Chief Scientist, AI Entrepreneur & Quant Trader

Experience in applying state of the art ML prediction methods at senior levels in prestigious organisations in the areas of asset management, trading, medicine, supply chain management and even fine wine pricing. Tristan is an Honorary Lecturer at UCL. He has a PhD from University College London, an MEng, Manufacturing and Engineering from the University of Cambridge and an MSc in Evolutionary and Adaptive Systems from the University of Sussex. *To be confirmed.*

Adriano Koshiyama

Machine Learning Engineer, Goldman Sachs

Adriano is a talented machine learning engineer. He holds a Bachelor's degree in Economics from UFRRJ and a Master's in Electrical Engineering from PUC-Rio. He is currently finishing his Ph.D. in Computational Finance and Machine Learning at University College London. *To be confirmed.*

FAQ

Should I attend the programme?
The MLI is a practitioner-orientated professional qualification that will enhance the short-term and long-term career prospects of anyone working in the following fields: Quantitative Finance, IT, Insurance, Model validation, Risk management.

When will the MLI commence?
Cohort 1 starts on Tuesday 2nd October 2018

How long is the course?
The examined part of the course takes place 6 months, with the examination taking place at the end of the course.

What is the fee & early bird structure?
There is a 30% discount until 20th June 2018, a 15% discount until 7th September 2018.

Who should attend the MLI?
This course has been designed to empower individuals who work in or are seeking a career in machine learning quantitative finance.

Can I defer my Machine Learning educational learning?
At any stage during the MLI you may defer your education until the next cohort. The cohort runs every September and April.

Where do I attend the course?
The course will take place in central London with weekly lectures at 17.30 each Tuesday for 3 hours.

How do I access the live global streaming lectures?
The live streaming will be available on Cisco WebEx, you will be given weekly login access details.

What happens if I fail the MLI?
You will have one chance to retake the final examination.

Email: enquiries@mlinstitute.org

What happens if I miss a lecture week?
All the lectures are filmed and are available for you on the MLI Student Portal for the duration of the course.

Can I stagger my MLI payments?
Yes the MLI offers flexible payment options where candidates can pay for the course by instalments.

Option 1:
- Pay in full

Option 2:
- Full course: Pay 50% on registration and 50% in lecture week 12
- Level 1: Pay 50% on registration and 50% in lecture week 11
- Level 2: Pay 50% on registration and 50% in lecture week 24

Option 3:
- Full course: Pay £1000 on registration, 50% of remaining balance in lecture week 10 and the final 50% in lecture week 22
- Level 1: Pay £1000 on registration, 50% of remaining balance in lecture week 6 and the final 50% in lecture week 11
- Level 2: Pay £1000 on registration, 50% of remaining balance in lecture week 18 and the final 50% in lecture week 24

Is it possible to take only selected modules
The MLI offers two flexible study options so you can decide how to complete the course:
- Full Course: Complete the 6 modules in 6 months
- Levels 1 & 2: Complete the 6 modules in 2 x 3 month stages. Please note that candidates must pass Level 1 and then Level 2 to become MLI certified.

What happens if I am unable to complete the course in six months?
It is possible for students to defer completion of the MLI to the next cohort at no extra charge.

Registration Form

Machine Learning Institute Certificate

Start date: Tuesday 2nd October 2018

Regular Course Fee

- ☐ Full Course Fee: £7950.00 + UK VAT
- ☐ Level 1 Fee: £4450.00 + UK VAT
- ☐ Level 2 Fee: £4450.00 + UK VAT

20% VAT is chargeable for residents in the UK and EU

Early Bird Discount

- ☐ 30% Discount until 20th June 2018
- ☐ 15% Discount until 7th September 2018

Discount code

VOLUME DISCOUNT: If 2 or more people from your institution wish to take the MLI course please contact us.

To register, please scan and email the completed booking form to:

E-mail: enquiries@mlinstitute.org

DELEGATE DETAILS
NAME:
ORGANISATION:
JOB TITLE:
DEPARTMENT:
ADDRESS:
POSTCODE:
TELEPHONE:
E-MAIL:
NATIONALITY:
DATE:
SIGNATURE:

FLEXIBLE PAYMENT OPTIONS:

☐ **Option 1:**
- Pay in full on Registration

☐ **Option 2:**
- Full course: Pay 50% on registration and 50% in lecture week 12
- Level 1: Pay 50% on registration and 50% in lecture week 11
- Level 2: Pay 50% on registration and 50% in lecture week 24

☐ **Option 3:**
- Full course: Pay £1000 on registration, 50% of remaining balance in lecture week 10 and the final 50% in lecture week 22
- Level 1: Pay £1000 on registration, 50% of remaining balance in lecture week 6 and the final 50% in lecture week 11
- Level 2: Pay £1000 on registration, 50% of remaining balance in lecture week 18 and the final 50% in lecture week 24

The Machine Learning institute Certificate
powered by The Quants Hub

E-mail: enquiries@mlinstitute.org / Tel: +44 (0) 1273 201 352

uae@fortemarkets.com / + T: +971 (0) 4313 2835

Contact details

Forte Markets UK
Level 33,
25 Canada Square,
Canary Wharf,
London E14 5LB
United Kingdom

T: +44 (0) 207 186 0250
E: info@fortemarkets.com

Forte Markets UAE
Level 41,
Emirates Tower
Sheikh Zayed Road,
Dubai P.O. Box 31303
UAE

T: +971 (0) 4313 2835
E: uae@fortemarkets.com

www.mlinstitute.org