

# Andrea Mezzalira

DATA SCIENTIST · PHD IN THEORETICAL PHYSICS

London Area, UK

☎ (+44) 7588142811 | ✉ mezzalira.andrea@gmail.com | 🌐 amezzali.github.io | 🌐 mezzalira-andrea

*PhD in Theoretical Physics, with 12 papers published by international, peer-reviewed journals. Six-years professional experience in mathematical modeling and data wrangling, I am used to coding mainly in Python, PL/SQL, Mathematica and Bash. I am deeply interested in Machine Learning and Data Science, that I consider the natural evolution of my career.*

## Skills

**Programming:** Python (Pandas, Scikit Learn, Keras, Sympy) | C | Mathematica | KNIME platform

**Big Data tools:** HDFS | Impala | Hive | Flume | Kafka | HUE

**Database:** Oracle | MySql | PL/SQL dialect

**Languages:** Italian | English | French

## Experience

### Data Scientist Consultant

London, UK

BÜHLER UK LIMITED

May 2018 - July 2018

- Analysing 15+ years of unstructured machine logs to deliver an innovative predictive alert system for machine faults and to give insights about corruption processes.
- Among the models used: logistic regression and clustering techniques.
- The project is part of the ASI Data Science fellowship.

### ASI Data Science

London, UK

ASI DATA SCIENCE FELLOW

May 2018 - July 2018

- Eight weeks of highly selective, intensive bootcamp in Data Science, with focus on Machine Learning and business-related skills.

### External Physics Professor

Alessandria Area, Italy

UNIVERSITY OF EASTERN PIEDMONT

Jan. 2018 - June 2018

- Lecturer for the Chemistry course “Electromagnetism and Optics”.

### Mathematics and Physics Teacher

Alessandria Area, Italy

LICEO “GIUSEPPE PEANO” (TORTONA) AND ISS “BARLETTI” (OVADA)

Sep. 2017 - June 2018

- Lectures are partially given in English under the “Content and Language Integrated Learning” (CLIL) program.
- European project Management: responsible of scientific contents, preparation of application packages.
- Organisation of computer science courses for senior students, using a multidisciplinary approach: starting from the analysis of scientific experiments, the students learn to basics of some programming languages (python,  $\text{\LaTeX}$ ).

### Data Scientist & Data Analyst Consultant

Vicenza Area, Italy

MIRIADE S.P.A.

Sep. 2016 - Sep. 2017

- Working in team to design on-demand data science projects with before-cleaning datasets larger than 100GB on average. Mainly used machine learning algorithms include: Ridge and Lasso regression, K-Means clustering and Latent Dirichlet Allocation.
- Among the projects, the forecasting of parking lots occupancy (20 parking lots,  $\sim 3000$  total parking spots and five-years transactions dataset) using ensemble methods.
- Using Big Data tools (above all: Flume, Kafka and Impala) to parse and analyse multi-source, real-time log streaming ( $\sim 50\text{KB/sec.}$ ).

### Database Administrator Consultant

Vicenza Area, Italy

MIRIADE S.P.A.

Jan. 2016 - Sep. 2017

- Installing, tuning and managing Database software (mainly Oracle and Postgres).
- First and second level customer service ticketing. Among the activities, database migration, query tuning and disaster recovery.
- Lecturer for databases courses dedicated to customers.

### Postdoctoral Research Fellow

Leiden, the Netherlands

UNIVERSITY OF LEIDEN - INSTITUUT-LORENTZ FOR THEORETICAL PHYSICS

Jan. 2015 - Feb. 2016

- Developing mathematical models, using String theory framework and semi-numeric PDEs techniques (shooting methods), to investigate unexplained universal behaviour of a class of phase transitions in electron systems.
- Spending a nine-months period visiting and collaborating with Trinity College Dublin, School of Mathematics.

## Postdoctoral Research Fellow

Bruxelles, Belgium

UNIVERSITÉ LIBRE DE BRUXELLES (ULB) - GROUP DE PHYSIQUE MATHÉMATIQUE DES INTERACTIONS FONDAMENTALES

May 2013 - Dec. 2014

- Working in a scientists consortium aimed to modelize many-body systems in the on-the-edge String theory framework. By developing a recursive algorithm to solve PDEs semi-numerically, I improved by 10x the precision of the results.

## Intern

Alessandria Area, Italy

UNIVERSITY OF EASTERN PIEDMONT

Jan. 2009 - Sep. 2009

- Working to extend and publish my master thesis.

## Intern

Geneva, Switzerland

CERN - ALICE EXPERIMENT GROUP

Summer 2006

- Building virtual control panels for Alice Silicon Pixel Detector (SPD); testing multiple detector's components.

## Intern

Marburg, Germany

PHILIPPS-UNIVERSITÄT MARBURG - DEPARTMENT OF CHEMISTRY - COMPUTER SIMULATION GROUP

Summer 2005

- Implementing a C++ code (based on Monte Carlo method) to simulate particles in nanotubes.

## Certifications

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### Coursera, Deep Learning Specialization

IMPROVING DEEP NEURAL NETWORKS: HYPERPARAMETER TUNING, REGULARIZATION AND OPTIMIZATION

Jan. 2018

- License YBFZKUCVF8VA

STRUCTURING MACHINE LEARNING PROJECTS

Jan. 2018

- License QPFVNN5WQMFY

CONVOLUTIONAL NEURAL NETWORKS

Dec. 2017

- License Q38A7FK6S3BZ

NEURAL NETWORKS AND DEEP LEARNING

Dec. 2017

- License P83C3SB4YTBC

### Cloudera

CLOUDERA DATA ANALYST (CCA)

Aug. 2017

## Education

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### University of Turin

Turin, Italy

PHD IN THEORETICAL PHYSICS

2010 - 2013

- Defense on 26th March 2013; thesis title *Fermionic Variations on AdS/CFT Themes*
- Spending a two-months period working at the Ecole Normale Supérieure in Paris.

### University of Turin

Turin, Italy

M.Sc. IN THEORETICAL PHYSICS

2006-2008

- Italian Title Degree: *Laurea Specialistica in Fisica delle Interazioni Fondamentali*.
- Score: 110/110 cum Laude.

### University of Eastern Piedmont

Alessandria, Italy

BACHELOR DEGREE

2003-2006

- Italian Title Degree: *Laurea Triennale in Fisica*.
- Score: 110/110 cum Laude.