Andrea **Mezzalira**

PhD in Theoretical Physics · Data Scientist

Alessandria Area, ITALY

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Five-years professional experience in mathematical modeling and data wrangling, with 12 papers published by international, peer-reviewed journals. Cloudera certified Analyst (CCA), I use to code with machine learning purposes mostly in Python, Mathematica and PL/SQL. I tend to use Regex enthusiastically whenever possible.

IT-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

Experience

University of Eastern Piedmont   *Alessandria Area, Italy*

External Professor   *Jan. 2018 - Present*

- Lecturer for the Chemistry course "Electromagnetism and Optics".

Liceo "Giuseppe Peano" (Tortona) and ISS "Barletti" (Ovada)   *Alessandria Area, Italy*

Mathematics and Physics Teacher   *Sep. 2017 - Present*

- Lectures are partially given in English under the "Content and Language Integrated Learning" (CLIL) program.
- European project Management: responsible of scientific contents, preparation of the application packages for "PON" programs.
- 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, LaTeX).

Miriade S.p.A.   *Vicenza Area, Italy*

Consultant Data Scientist & Data Analyst   *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 ($\sim$ 50KB/sec.).

Consultant Database Administrator   *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.

University of Leiden, Instituut-Lorentz for Theoretical Physics   *Leiden, the Netherlands*

Postdoctoral research fellow   *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.

Université Libre de Bruxelles (ULB)   *Bruxelles, Belgium*

Postdoctoral research fellow - Group de Physique Mathématique des Interations 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.

University of Eastern Piedmont   *Alessandria Area, Italy*

Intern   *Jan. 2009 - Sep. 2009*

- Working to extend and publish my master thesis.

CERN *Geneva, Switzerland*

Intern - Alice experiment group *Summer 2006*

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

Philipps-Universität Marburg *Marburg, Germany*

Intern - Department of Chemistry - Computer Simulation Group *Summer 2005*

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

Education

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 Superieure 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.

Certifications

Coursera, Deep Learning Specialization

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization *Jan. 2018*

- License YBFZKUCVF8VA

Coursera, Deep Learning Specialization

Structuring Machine Learning Projects *Jan. 2018*

- License QPFVNN5WQMFY

Coursera, Deep Learning Specialization

Convolutional Neural Networks *Dec. 2017*

- License Q38A7FK6S3BZ

Coursera, Deep Learning Specialization

Neural Networks and Deep Learning *Dec. 2017*

- License P83C3SB4YTBC

Cloudera

Cloudera Data Analyst (CCA) *Aug. 2017*