



# Andrea Dal Pozzolo, PhD

Born in Schio (Italy) on August 19, 1987

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## SUMMARY

I'm passionate about data and I define myself a Data Scientist: I'm an expert in Machine Learning, Data Mining and statistical techniques. I'm also interested in Actuarial Science and the application of statistical models in finance and business to extract knowledge from data.

## EDUCATION

### Université Libre de Bruxelles, Brussels, Belgium

Doctor of Philosophy (Ph.D.) in Computer Science

Jan 2012 – Dec 2015

- Thesis: Adaptive Machine Learning for Credit Card Fraud Detection
- Adviser: Prof. Gianluca Bontempi
- Research areas: Machine Learning, Data Mining, Statistics and Fraud Detection.

### Università di Bologna, Bologna, Italy

Master of Science (M.S.) in Applied Statistics and Actuarial Science

Sep 2009 – Dec 2011

- Thesis: Comparison of Data Mining Techniques for Insurance Claim Prediction
- Final grade: 110/110 Summa Cum Laude

Bachelor of Science (B.S.) in Statistics for Finance and Insurance

Sep 2006 – Jul 2009

- Second year at University of Glasgow (UK), Erasmus student
- Final grade: 110/110 Summa Cum Laude

## RESEARCH EXPERIENCE

### Politecnico di Milano, Milan, Italy

Visiting researcher at Dipartimento Eletttronica e Informazione (DEI)

Apr 2015 – Jun 2015

- Supervisors: Prof. Giacomo Boracchi
- Research areas: Credit Card Fraud Detection, Concept Drift, Active Learning.

### University of Notre Dame, Notre Dame, Indiana, USA

Visiting researcher at Data Inference Analytics and Learning Lab (DIAL).

May 2014 – Jun 2014

- Supervisors: Prof. Nitesh V Chawla
- Research areas: Unbalanced Classification, Concept Drift, Data Streams.

## ACADEMIC AWARDS

BruFence project (total 1M 192K €), Innoviris (Brussels Region).

2015 – 2018

Doctiris PhD scholarship (320K €), Innoviris (Brussels Region).

2012 – 2015

Travel Grant for 2015 IJCNN conference (800 \$), IEEE

Jul 2015

Travel Grant for research collaborations (1500 €), Université Libre de Bruxelles

Apr 2015

Master Thesis scholarship (2000 €), Università di Bologna

Sep 2011

Erasmus mundus exchange scholarship (3000 €), Università di Bologna

Sep 2007

## WORK EXPERIENCE

### Ernst & Young, Zurich, Switzerland

Quantitative Consultant | Financial Services Advisory - Risk

Since Apr 2016

- Application of Machine Learning algorithms for conduct risk (fraud detection).
- Credit and Market risk modelling for major Swiss Banks.
- VaR and ES model auditing.

### VASCO Data Security, Wemmel, Belgium

Decision Analytics Consultant

Jan 2016 – Mar 2016

- Implementation of Fraud Detection Systems based on Machine Learning algorithms.
- Definition of factors used by business rules for fraud prevention.
- Development of a Link Analysis application supporting fraud investigations.

### Machine Learning Group - ULB, Brussels, Belgium

Researcher

Jan 2012 – Dec 2015

- Development of Machine Learning algorithms for Fraud Detection in credit cards.
- Collaboration with the fraud detection team of Worldline S.A (Brussels, Belgium).
- Supervision and coaching of master students.

**Directa Sim**, Turin, Italy

Analyst

Aug 2009 – Jul 2011

- Supervision of VisualTrader development (online stock trading platform).
- Development of trading systems and market scanners.
- Customer support for the trading platform.

**Allianz**, Milan, Italy

Life actuary assistant

Nov 2008 – Feb 2009

- Balance analysis and report according to US GAAP and IFRS regulation (HB2).
- Gained a basic working knowledge of Moses and Prohet software.
- Worked in a team of 5 people having balance deadline to respect.

**Absolute Quality**, Glasgow, Scotland

Computer Game tester/translator

Oct 2007 – Nov 2007

- Translation in Italian and consistency with English.
- Develop analytical ability making sure that transcript match my report.

**Riccardo's restaurant**, London, England

Waiter

Jun 2005 – Sep 2005

- Self-funded study and work experience in London for three months.
- Demonstrated my ability to adapt and thrive in new and different environments.

**IT SKILLS** R, Python, SAS, SQL, HTML, Java, C++, SPSS, L<sup>A</sup>T<sub>E</sub>X, Microsoft Office suite (ECDL licence).

**SOFTWARE** Developed an R package called *unbalanced* for classification with unbalanced distributions.

**PUBLICATIONS** A. Dal Pozzolo, O. Caelen, and G. Bontempi, “When is undersampling effective in unbalanced classification tasks?,” in *Machine Learning and Knowledge Discovery in Databases (ECML-PKDD)*, Porto, Portugal, 2015.

A. Dal Pozzolo, O. Caelen, R. A Johnson and G. Bontempi, “Calibrating Probability with Undersampling for Unbalanced Classification,” in *Proceedings of 2015 IEEE Symposium Series on Computational Intelligence (SSCI)*, Cape Town, South Africa, 2015.

A. Dal Pozzolo, G. Boracchi, O. Caelen, C. Alippi and G. Bontempi, “Credit Card Fraud Detection and Concept-Drift Adaptation with Delayed Supervised Information,” in *Proceedings of 2015 International Joint Conference on Neural Networks (IJCNN)*, Killarney, Ireland, 2015.

A. Dal Pozzolo, O. Caelen, Y. Le Borgne, S. Waterschoot, and G. Bontempi, “Learned lessons in credit card fraud detection from a practitioner perspective,” *Expert Systems with Applications*, vol. 41, no. 10, pp. 4915–4928, 2014.

A. Dal Pozzolo, R. A Johnson, O. Caelen, S. Waterschoot, N. V Chawla, and G. Bontempi, “Using HDDT to avoid instances propagation in unbalanced and evolving data streams,” in *Proceedings of 2014 International Joint Conference on Neural Networks (IJCNN)*, Beijing, China, 2014.

A. Dal Pozzolo, O. Caelen, S. Waterschoot, and G. Bontempi, “Racing for unbalanced methods selection,” in *Proceedings of the 14th International Conference on Intelligent Data Engineering and Automated Learning (IDEAL)*, Hefei, China, 2013.

**LANGUAGES** Italian: Native language.  
English: Fluent (speaking, reading, writing).  
French: Fluent (speaking, reading). Intermediate (writing).  
German: Beginner (speaking, reading).

**INTERESTS** Cycling, Basketball, Economics, Digital photography.

**REFERENCES** Available upon request.

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