Andrea Dal Pozzolo, PhD

Born in Schio (Italy) on August 19, 1987
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SUMMARY

My passion is to turn data into insights and products. Many problems can be solved by asking the right questions and using data to answer them, but many data sources are still untapped. I like working out the questions with the experts and digging down the data to find those gems. My expertise is in applying statistical and Machine Learning techniques to build prediction models for diverse business case. I'm currently leading a team of 6 data scientists/analysts.

ACHIEVEMENTS

Built and deployed multiple data products deliverying consumer insights to senior managment.
Leading several projects on applied Machine Learning and advanced analytics.
Deployed an advanced diagnostic tool for IQOS devices saving 30M USD in replacements.
Promoted to Manager after 1 year and a half (PMI), Senior Consultant after 1 year (EY).
Designed a Machine Learning solution providing a Bank savings for up to 2.6M CHF a year.
Provided training on Machine Learning to EY consultants across Europe (> 100 participants).

WORK EXPERIENCE

Philp Morris International, Neuchatel, Switzerland
Manager Analytics and Report   Since Sep 2019
 • Automatic identification of defective/working devices
 • Clustering of devices with similar errors
 • Detection of anomalous time series

Senior Enterprise Data Scientist   Jan 2018 – Aug 2019
 • Identification of consumption patterns of Reduced Risk Products.
 • Delivery of multiple consumption insights to top managment
 • Detection and forecast of consumption trends
 • Clustering of users with similar behaviour

Ernst & Young, Zurich, Switzerland
Senior Consultant | Quant & Analytics team   Apr 2016 – Dec 2017
 • Nordea Bank: event triage of fraud alerts using Spark ML.
 • UBS: detection of Money Laundering activities using Machine Learning techniques.
 • Credit-Suisse: PnL calculation and analysis of fraudulent External Assets Managers.
 • UBS: methodology and implementation audit of credit risk factor model for VaR and SVaR.
 • Zurich Insurance Group: treasury fraud pattern identification using Machine Learning algorithms.

VASCO Data Security (Now OneSpan), Wemmel, Belgium
Decision Analytics Consultant   Jan 2016 – Mar 2016
 • Implementation of Fraud Detection Systems based on Machine Learning algorithms.
 • 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 trading platform).
 • Development of trading systems and market scanners.
 • Customer support for the trading platform.

SOFT SKILLS

Data analysis, Statistical modelling, Machine Learning, Scientific writing and Project Management

IT SKILLS

Python, R, SQL, Git, Spark, Unix/Linux, LaTeX, Tableau, Microsoft Office suite.

ML LIBRARIES

Scikit-Learn, Spark ML/MLlib, H2O, TensorFlow, XGBoost, Mlr, Caret.

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

COLLABORATIONS **Politecnico di Milano**, Milan, Italy

Visiting researcher at Dipartimento Elettronica e Informazione (DEI) — Apr 2015 – Jun 2015
- Supervisors: Prof. Giacomo Boracchi

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

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

PUBLICATIONS

A. Dal Pozzolo, G. Boracchi, O. Caelen, C. Alippi and G. Bontempi, "Credit Card Fraud Detection: a Realistic Modeling and a Novel Learning Strategy" to appear in *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 2017.

F. Carcillo, A. Dal Pozzolo, Y. Le Borgne, O. Caelen, Y. Mazzer and G. Bontempi, "SCARFF: a Scalable Framework for Streaming Credit Card Fraud Detection with Spark" to appear in *Information Fusion (INFFUS)*, 2017.

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 Mother tongue: Italian   Fluent: English, French   Beginner: German, Spanish

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