ROBERTO FIERIMONTE

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WORK EXPERIENCE

Senior Machine Learning Engineer   London, UK
BT (British Telecom) - Telecommunications   January 2022 to present

· Responsible for the development and end-to-end delivery of ML models and Data products in Google Cloud Platform (GCP) using Kubeflow pipelines and Bigquery. Using Terraform to manage cloud infrastructure, Gitlab CI/CD to deploy code, Vertex AI, Pub/Sub, Cloud Run, and Cloud Functions to train and serve models, and Cloud Alerts to monitor jobs. Collaborating with Data Engineers and Solution Architects to ensure that the models are integrated with upstream and downstream production systems. Examples of projects delivered include:

  • To support of the Mobile Networks team in reducing operating costs impacted by high energy bills, implemented a dynamic optimisation model to rank and recommend 3G sites to decommission based on customer utilisation and signal coverage overlapping. The model has been used so far to support the switch off of 3,500+ 3G sites (out of 17,000), with an estimated cost saving of £1M YTD. Won the "BT Networks Star Award" for the impact of this project.

  • For BT's wholesale division Openreach, developed two time series models using Prophet to forecast the daily number of field engineers required to delivery ultrafast fibre as well their absenteeism rate. Also for Openreach, led the development of a quantile regression model using CatBoost to predict in real time the delivery date of customers' Ethernet orders, reducing the number of fines from the UK's communication regulator (Ofcom) by 35%.

· Holding the overall responsibility for the delivery of projects across the Networks and Openreach business units, including monitoring the financial benefits of the models built and managing the relationships with stakeholders. Regularly presented updates to the BT leadership team up to the Chief Digital Officer.

· Contributing to the development of the team's culture and development by running knowledge sharing sessions, introducing programming best practices, and mentoring younger Data Scientists.

Data Scientist   London, UK
Avanade - Technology Consulting   March 2020 to May 2021

· For the treasury department of a key player in the Oil and Gas industry, developed a financial stress tests and mitigation model in Python, allowing the client to quickly and efficient manage their cash deposits during the COVID-19 pandemic, and achieving a 100 times performance improvement in runtime compared to the previous SQL-based solution. Coordinated the development of the product and mediated conflicts between different Engineering teams.

· For the same client, led the development and the productionisation of a time series model (using XGBoost, Azure functions and Flask APIs) to predict daily cash flows for more than 100 bank accounts, improving the forecasts' accuracy by 20% over the previous manual process. Allowed the equivalent of 8 full time client employees to be retrained and to take on new roles, with an estimate of £350,000 savings for the client. Regularly reviewed the results with stakeholders up the VP of Treasury. Won the client's "Deliver with Excellence Award".

Business Analyst   London, UK
Amazon - eCommerce   February 2019 to February 2020

· Owned the Product Analytics work stream of a Product Marketing initiative aimed at retaining disengaged newly registered customers. Collaborated with the Marketing, Product, UX and Data Science teams to define targeted user cohorts, and designed and analysed 4 A/B tests, which reactivated 15% of likely lost customers.

· In support of a multi-million £ deal with a top tier UK publisher, developed a profitability prediction model for authors prior to signing for the Kindle Unlimited subscription programme.

Data Scientist   London, UK
Bumble - Social Network   December 2016 to January 2019

· Led a team of 2 Data Analysts in implementing a user segmentation model (using the PCA and k-Means algorithms) for the purpose of providing personalised product features. Acted as the primary point of contact between the team and the Product Managers, translating business requirements into a structured project plan. Managed the project in an Agile fashion from start to delivery, presenting regular updates to the PM team to ensure that the model met business' expectations. Delivered a tool used by Product Managers to cluster 400 million users daily based on their engagement with the product, and to run personalised A/B tests.

· Led the implementation of A/B tests on new users for the purpose of improving the user registration process. Identified the technical requirements and the business metrics and liaised with Software Developers to implement the required code changes. Guided BI Developers in the development of reporting dashboards to monitor the impact of the tests. Consequently assisted the Product Team in using the results of the A/B tests to improve the user registration process.

- Built and maintained a Python library for statistical analysis, predictive analytics and data visualisation in support of the entire Data Analytics team to facilitate and automate the data analysis process.
- Mentored Data Analysts in developing soft and hard skills.

Operations Research Intern — London, UK
Amazon - Logistics — November 2015 to May 2016

- Increased the accuracy of the fleet utilisation planning system through the analysis of large-scale demographic data using R, resulting in a 10% reduction in the number of required delivery vans.
- Developed optimisation and simulation models in Java and FICO Xpress for optimising the location and capacity of the distribution sites to support the Amazon Logistics' expansion in the UK; worked with the UK Country Director to extended the next-day delivery option to 85% of the British customers.

PROFESSIONAL SKILLS

- Programming / Scripting Languages: Python, SQL, Bash, LaTeX, Java (beginner), C++ (beginner)
- ML Ops / ML Engineering: Git (Gitlab and Bitbucket CI/CD), Poetry, Terraform, Docker, FastAPI, PySpark, GCP(Kubeflow / Vertex AI Pipelines, Google Pub/Sub, Google Cloud Run), Azure ML Studio (beginner)
- Soft Skills: Stakeholders Management, Agile Project Management, Mentorship, Presentations, Research

EDUCATION

M.Sc., Computer Science, Computational Statistics and Machine Learning — October 2017 to September 2018
University College London, Grade: 81% (Distinction)
Awarded the **Dean's List** for outstanding academic performance.
Courses from the Gatsby Computational Neuroscience Unit (69% and 79%) and Google Deepmind (96%).
Final thesis: Latent variable models for sequence modelling and prediction (80%).

M.Sc., Engineering, Industrial Engineering and Operations Research — October 2012 to January 2015
Sapienza University of Rome, Grade: 110/110 *cum laude* (Distinction, top 5%)

B.Sc., Engineering, Industrial Management — October 2009 to July 2012
Sapienza University of Rome, Grade: 110/110 (First-class Honours, top 10%)

SELECTED PUBLICATIONS

Mansbridge A., **Fierimonte, R.**, Feige, I., and D. Barber. Improving latent variable descriptiveness by modelling rather than ad-hoc factors. In: *Machine Learning*, September 2019, Volume 108, Issue 8–9, pp 1601–1611, Springer, 2019.

Fierimonte, R., Scardapane, S., Uncini A. and M. Panella. Fully Decentralized Semi-supervised Learning via Privacy-Preserving Matrix Completion. In: *IEEE Transactions on Neural Networks and Learning Systems*, Vol. 28, Issue. 11, pp. $2699-2711$, IEEE, 2017.

Fierimonte, R., Barbato, M., Rosato, A. and M. Panella. Distributed Learning of Random Weights Fuzzy Neural Networks. In: 2016 *World Congress on Computational Intelligence (WCCI'16)*, IEEE, 2016.

Scardapane S., **Fierimonte, R.**, Di Lorenzo, P., Panella, M., and A. Uncini. Distributed Semi-Supervised Support Vector Machines. In: *Neural Networks*, Vol. 80, pp. $43 - 52$, Elsevier, 2016.

Scardapane, S., **Fierimonte, R.**, Wang, D., Panella, M., and A. Uncini. Distributed Music Classification using Random Vector Functional-Link Nets. In: *Proc. of* 2015 *IEEE/INNS International Joint Conference on Neural Networks (IJCNN'15)*, IEEE/INNS, 2015.

VOLUNTEERING

Data Scientist and Project Manager - Datakind UK — March 2020 to July 2021
Supported charities across UK to make the most out of their data. Conducted analyses, built visualisations and predictive models that helped charities to optimise their business models and to better know their clients. Led a team of 4 Data Scientists and Engineers in the implementation of a churn prediction model (using Random Forests) for a youth support charity, in order to provide proactive and tailored support to their clients. Defined the project plan, requirements and deliverables. Managed the project Scrum board and communication with the client.

INTERESTS AND LANGUAGES

Interests — Volunteering, Politics and Society, Reading, Cycling, Cooking, Yoga, Continuous Learning
Languages — English (Mother tongue equivalent), Italian (Mother tongue), Finnish (Beginner)