## Ruggero De Vita

### Senior Data Scientist, PhD

Solid analytical background, programming proficiency and presentation skills. Proven track record in successfully applying modern machine learning solutions to a variety of industrial and academic applications.

### **Professional Experience**

# Senior Data Scientist

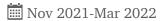
Mar 2022-present



# tiko Energy Solutions

- In the context of operating virtual power plants to stabilise the electrical grid, I contribute to the design and development of forecasting algorithms for the prediction of power consumption (1 sec frequency Time Series) for a pool of 150000+ residential electric heaters.
- Models rely on deep learning algorithms (Recurrent Neural Networks with multiple LSTM layers) and gradient boosting frameworks (LightGBM, XGBoost)
- Maintenance of the data pipeline requires in-depth knowledge of highlevel tools suited for production (e.g. mlflow, Airflow, Kubernetes, Timescale).

### Senior Data Scientist Consultant Nov 2021-Mar 2022 Milano, Italy **Ernst & Young**





For a Manufacturing company:

- Development of a Random Forest Regressor for the prediction of the optimal price of cooling and refrigeration systems based on past transactions, properties of the market, and technical specifications
- Model interpretation through Shapley values and root cause analysis through decision trees' visualisation tools

### **Data Scientist Consultant** Capgemini Engineering

🛗 Jun 2019-Nov 2021 🛛 🤉 Milano, Italy



For a Major Electrical company:

- Development of machine learning models (artificial neural network multilayer perceptron) for the predictive maintenance of electrical assets with regard to external disruptive factors such as ice formation on conductors or vegetation growth.
- Backend support for a dashboard to monitor key performance indicators related to asset degradation and anomaly detection (forecasting with additive models using Facebook's Prophet)
- Extensive time series analysis linear and auto regressive models.

For a Major Telecommunication company:

- Training and deployment of a machine learning model (Random Forest Classifier) to evaluate the risk of customers to miss the payment of recurrent invoices
- Software development and engineering in BigData frameworks (ApacheHadoop & PySpark), relying on Cloud facilities (AWS), versioning tools and testing practices



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### Core skills

- Problem Solving: Machine Learning · Advanced Analytics · Statistical Analysis · Business Insights · Model Explainability · Project Management
- Programming: Cloud Computing · Code Versioning & Testing · Parallel Computing
- Presentation: Written (Scientific Publications) · Oral (Public Talks and Teaching Experience) · Data Representation
- **SOFT**: Detail Oriented · Driving Results · Teamwork · Critical Thinking · Resiliency · Leadership

### Technical tools

- Python: pandas · numpy · matplotlib · seaborn · scipy
- Machine Learning libraries: scikitlearn · tensorflow · keras · mlflow · skforecast
- Machine Learning models: K-means · Random Forest · XGBoost · ANN (Autoencoder) · RNN (LSTM) · LightGBM
- Database: PostgreSQL · Timescale
- Orchestration: Airflow · Docker · Kubernetes · slurm
- Big Data: PySpark
- Version Control: Git, GitHub, GitLab
- **IDE**: PyCharm · Jupyter
- Cloud: AWS
- Front End: Django · JavaScript · HTML · React

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### **1** Languages

Italian (Native) English (Proficient)

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### **▲** Interests

Boardgames Travel Video

### **Education**

2016-2019	Doctor of Philosophy (Astrophysics);
	The University of Melbourne; Testamur
2012-2015	Master of Science (Physics);
	Università degli studi di Milano; 110/110 cum laude
2008-2012	Bachelor of Science (Physics);
	Università degli studi di Milano; 100/110

### **Honours and Awards**

2017-18	Travel Grants (tot. 5,000 AUD)
2016	ND Goldsworthy Scholarship (21,000 AUD in 3.5 years)
2015	Melbourne Research Scholarship (100,000 AUD in 3.5 years)
2015	Angelo della Riccia Travel Scholarship (5,500 EUR)

### **International Research Visits**

Oct 2017	HARVARD visiting researcher (2 months), Cambridge (MA)
Mar 2016	CAMK visitor (1 week), Warsaw (POL)
Jan 2016	MPIA visitor (4 months), Heidelberg (GER).

### **Certifications**

Oct 2020	Spark and Python for Big Data with PySpark by Udemy
Feb 2018	Neural Networks and Deep Learning on Coursera
Oct 2017	Machine Learning by Stanford University on Coursera
Sep 2015	IELTS, Score: 7.0, equivalent CEFR level: C1

### **Scientific Publications**

- de Vita R., Trenti M., MacLeod M., 2019, MNRAS, 485, 5752
- de Vita R., Trenti M., MacLeod M., 2018, MNRAS, 475, 1574
- de Vita R., Trenti M., Bianchini P., et al. 2017, MNRAS, 467, 4057
- Askar A., Bianchini P., de Vita R., et al. 2017, MNRAS, 464, 3090
- de Vita R., Bertin G., Zocchi A., 2016, A&A, 590, A16

### **Seminars and Conferences**

Nov 2017	Introduction to high performance computing (ADACS); (AUS)
Jun 2017	Globular cluster systems and their host galaxies; (ITA)
Apr 2016	Contributed talk, MODEST 16; (ITA)

### **Teaching Experience**

2017	Laboratory coordinator, The University of Melbourne;
	Subject: "Introduction to Life Earth and Universe"
2016	Laboratory demonstrator, The University of Melbourne;
	Subject: "From the Solar System to the Cosmos"