europass Curriculum vitae

PERSONAL INFORMATION Francesco Taverna

WORK EXPERIENCE

December 2020 – April 2021

Internship at EU Science Hub

Joint Research Centre (JRC), EU Science Hub.
European Commission – Joint Research Centre, Via E. Fermi 2, Ispra (Italy)

Assigned in the Air and Climate Unit (C05). Analysis of a dataset from air pollution sensors in order to:

- upgrade and improve the existing database.
- develop an R Shiny app that provides useful metrics on the database and allows collaborations between different institutions. Note: the application is still under security check, therefore, I can not provide a link, if needed I can make a video showing its main parts.

June 2020 – September 2020

Internship at Silicon Austria Labs for master's thesis

Silicon Austria Labs, European research centre for electronic-based systems.
High Tech Campus Villach, Europastraße 12, A-9524 (Austria)

Analysis of a dataset from a photovoltaic plant in order to

- identify statistical properties of sensors and find malfunctions through the analysis of their seasonal behaviour
- confirm the stochastic seasonal patter of the sensors and inverter output through robust statistics, after studying in detail the related theory
- analyse the time series of performance ratio with the aim of providing an in-field measure of model efficiency. The X-12ARIMA method is used to seasonally adjust the series.

EDUCATION AND TRAINING

January 2022– Ongoing

Ph.D. in Computer Science and Artificial Intelligence ISCED8

University of Udine, Italy

Area of study: Electric Vehicle Routing Problem | Supervisor: Professor Di Gaspero Luca

Development of operational research models and metaheuristic algorithms to optimize current waste collection routes and investigate the feasibility of electrifying the fleet. Specifically, we will focus on the periodic vehicle routing problem with intermediate facilities and the electric vehicle routing problem with non-linear charging functions and load-dependent discharging. Our goal is to achieve workable plans for the partner company.

June 2023– November 2023

Visiting Ph.D student ISCED8

University of Vienna, Austria

Area of study: Periodic vehicle routing | Waste Collection

Study of the periodic vehicle routing problem with intermediate facilities for the case of waste management. The work was focused on the definition of new constraints for the problem and the usage of column generation algorithm to solve real instances.

June 2023

Advanced School in Artificial Intelligence ISCED8

University of Ferrara, Italy

Area of study: Machine Learning | Constraint Programming

September 2022

European Summer School on Quantum AI ISCED8

CISM - International Centre for Mechanical Sciences, Italy

Area of study: Machine Learning | Constraint Programming

June 2021– December 2021

Research Assistant in Biostatistics

ISCED8

University of Göttingen, Germany

Area of study: Group sequential analysis

Extension of group sequential methods to small sample sizes to reduce the number of needed animals in preclinical research. The goal is to develop both approximate as well as resampling-based group sequential designs using both mean-based and rank-based procedures.

2020

Teaching qualification, 24 CFU

University of Udine, Italy

Qualified to teach in A-26 and A-27 classes

October 2017– October 2020

Master's degree in Mathematics

ISCED 7

University of Udine, Italy

Area of study: Applied mathematics, operational research and statistics

Thesis title: Advanced statistical methods for the analysis of a photovoltaic system, | Thesis subject: Data analysis, Time series analysis, Seasonal adjustment techniques, | Thesis supervisor: Professor Vidoni Paolo; Cosupervisors: Professors Grassetti Luca, Bellio Ruggero

Final mark: 110L/110

October 2014– October 2017

Bachelor's degree in Mathematics

ISCED 6

University of Udine, Italy

Thesis title: Hölder regularity of functions in De Giorgi's class, | Thesis subject: Differential equations, | Thesis supervisor: Professor Toader Rodiaca

Final mark: 106/110

2014

Cambridge Certificate of Advance English (C1)

Cambridge English Level 2 Certificate in ESOL International (Advanced), Cambridge English Language Assessment, 29 Jul 2014

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
	Cambridge Certificate of Advance English (C1)				

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Prorgamming languages

- R, RMarkdown, R shiny
- Python for optimization problems and statistical analysis
- MATLAB for computational problems
- C++ and Gurobi for optimization problems
- MySQL (retrieve data for statistical analysis)
- competent with most Microsoft Office programs

Communication skills

- team work:I worked in a research team and played in a volleyball and football team. For 1 years I have been the supervisor of my volleyball team.
- intercultural skills: in my high school years, I have attended English summer schools in Scarborough, Manchester and Dublin where I had the opportunity to meet many international students and improve my awareness of different cultures and my coexistence skills.

Organisational / managerial skills

- I have been the supervisor of my volleyball team and of a university group, for which I have written a follow-up on Markov-switching model.
- in Silicon Lab Austia I had the opportunity to work with many engineers, the main goal was to organise the work in such a way that both theory and practical result were carried out together.

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Proficient user	Independent user	Independent user

Digital competences - Self-assessment grid

Other skills

Reading history essay and visiting Modern Art galleries. Enjoy playing volleyball, skiing and running 10K distance.

Driving licence

B

PUBLICATIONS

[1] Ting Fa Margherita Chang, Livio Clemente Piccinini, Francesco Taverna, and Maria Antonietta Lepellere. “THE RECOVERY OF COMPREHENSIBLE MATHEMATICS”. In: *Proceedings of the International Scientific Conference. Volume V*. Vol. 69. 2019, p. 84.

[2] W. Muehleisen, L. neumainer, M. Makula, B. Streit, M. Graefe, C. Gradwohl, C. Hirschl, and F. Taverna. *The need for an accuracy check of irradiation sensor for photovoltaic power plants*. Tech. rep. Working paper for European Photovoltaic Solar Energy Conference and Exhibition. Silicon Lab Austria, 2020.