



## Simone Norberti

Nationality: Italian

### WORK EXPERIENCE

---

#### Junior Research Associate

**CMCC Foundation (Euro-Mediterranean Center on Climate Change)** [ 09/2024 – Current ]

Contributing to the development of Machine Learning models for weather and climate applications to achieve key project objectives.

Supporting the implementation and optimization of foundation models for ocean and ice forecasting using Transformer-based neural network and Graph neural networks (GNNs).

Evaluating the performance of parallel models on GPU architectures to enhance computational efficiency.

Defining models for forecasting extreme weather events.

Assisting in the preparation of technical documentation and contributing to scientific reporting.

#### Research Intern

**CMCC Foundation (Euro-Mediterranean Center on Climate Change)** [ 11/2023 – 04/2024 ]

Analysis, design, and development of a 4D Transformer-based neural network for fast and accurate ocean forecasting over the Mediterranean Sea.

### EDUCATION AND TRAINING

---

#### Computer Engineering

**Università del Salento** [ 2021 – 2024 ]

Final grade: 110 / 110 cum Laude | Level in EQF: EQF level 7

Research thesis in Artificial Intelligence Applications: "4D Transformer Neural Network for Ocean Forecasting: a case study over Mediterranean Sea", supervised by Prof. Epicoco Italo

Main topics: Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, Data Mining, Big Data Management, Internet of Things, Parallel Computing, Cyber Security, UNIX Programming, Network Technologies and Design, Virtual and Augmented Reality, Operations Research

#### Ingegneria dell'Informazione

**Università del Salento** [ 2018 – 2021 ]

Final grade: 110 / 110 cum Laude | Level in EQF: EQF level 6

Research thesis in Computer Networks: "Design and development of a Modbus protocol simulator for research purposes", supervised by Prof. Patrono Luigi

Main topics: Software Engineering, Computer Networks, Operating Systems, Programming, Algorithms and Data Structures, Signal Theory, Automatic Controls, Electronics, Telecommunications

#### High School Diploma in Information Technology

**IIS "Enrico Fermi"** [ 2012 – 2018 ]

City: Lecce | Level in EQF: EQF level 5

Introduction to Computer Science and Electronic & Telecommunication Technologies. Introduction to Computer Network. Use and knowledge of the UNIX environment. Basics of C, Java, PHP, SQL, JavaScript, HTML, CSS.

## LANGUAGE SKILLS

---

**Mother tongue(s):** Italian

**Other language(s):**

**Inglese**

**LISTENING B2 READING B2 WRITING B2**

**SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1**

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## PROJECTS

---

**Internet of Things course project** Design and development of an IoT system for monitoring and detecting anomalies of Sarcopenia through the use of Artificial Intelligence and Cloud Computing.

**Artificial Intelligence Applications course project** Data analysis for a bank decision support system to select the best customers for the upcoming marketing campaign on term deposits using various machine learning and deep learning algorithms.

**Data Mining and Machine Learning course project** Implementation of Frugal-2U algorithm: estimating q-quantile in streaming in linear time with only two cells of memory.

**Computer Vision course project** Implementation and fine-tuning of a pre-trained CNN ResNet-50 for a skin lesion classifier

**Parallel Algorithm course project** Parallel implementation of the Hough Transform algorithm for efficient and accelerated processing of image data, leveraging parallel computing techniques to enhance performance.

**Virtual and Augmented Reality course project** Design and development of a Virtual Reality application using Unity3D, in order to support patients suffering from Apraxia, aiming to enhance their autonomy and safety in performing simple daily actions.

**Big Data Management course project** Data analysis of a large dataset describing renewable power plants in various EU countries to support situation assessment and decision-making by developing appropriate analytics and Power BI data dashboards.

**Software Engineering course project** Design and implementation of a stand-alone Java application for car sharing using Agile methodology and UML.

---

*Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 e del GDPR (Regolamento UE 2016/679)*

Lecce, 01/10/2024