



Simone Norberti

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Nationality: Italian

WORK EXPERIENCE

[01/2025 – Current] **Junior Research Associate - ADIC (Advanced Digital Innovation Center)**

Euro-Mediterranean Center on Climate Change (CMCC) Foundation, Lecce (Italy)

WeatherGenerator Project: Contributing to the ongoing implementation and optimization of foundation models for atmosphere, ocean, and ice forecasting using Transformer-based and hybrid Graph-Transformer neural networks; evaluating and benchmarking parallel models on GPU architectures to enhance computational efficiency; designing predictive models for extreme weather events; assisting in the preparation of technical documentation and scientific reporting.

[09/2024 – 12/2024] **Junior Research Associate - ASC (Advanced Scientific Computing Division)**

Euro-Mediterranean Center on Climate Change (CMCC) Foundation, Lecce (Italy)

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

[11/2023 – 04/2024] **Research Intern - ASC (Advanced Scientific Computing Division)**

Euro-Mediterranean Center on Climate Change (CMCC) Foundation, Lecce (Italy)

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

EDUCATION AND TRAINING

[12/2024 – 12/2024] **Data Driven Modeling and Predictions of the Earth System**

FERS - Future Earth Research School

[2021 – 2023] **Computer Engineering**

Università del Salento

| **Final grade:** 110 / 110 cum Laude

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

[2018 – 2021] **Ingegneria dell'Informazione**

Università del Salento

| **Final grade:** 110 / 110 cum Laude

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

[2012 – 2018] **High School Diploma in Information Technology**

IIS "Enrico Fermi"

DIGITAL SKILLS

My Digital Skills

Programming Languages

Python (expert) | C, C++ (Expert) | Java | Javascript/Typescript

Data format

Zarr | netCDF | XML, JSON, YAML | CSV

Database

MySQL | MongoDB | SQLite

Parallel Programming

Experience with the Juno and Leonardo Supercomputers | MPI, OpenMP, CUDA

Operating Systems

Linux (expert) | UNIX-like OS

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**

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

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

Implementation of Frugal-2U algorithm: estimating q-quantile in streaming in linear time with only two cells of memory.

Computer Vision course

Implementation and fine-tuning of a pre-trained CNN ResNet-50 for a skin lesion classifier

Parallel Algorithm course

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

Design and development of an 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

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.

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, 23/01/2025