europass Curriculum vitae

PERSONAL INFORMATION

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EDUCATION AND TRAINING

This section reports academic titles, complementary academic-level courses (e.g., Winter and Summer Schools, Athens courses, and merit-based courses), music courses at Conservatorio, and high school-level titles.

ACADEMIC TITLES

November 2022 – **PhD in Information Technology** EQF 8

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

Relevant courses (A.Y. 2022/2023 and A.Y. 2023/2024):

- Research skills (PhD school course) – grade: A
- Innovative Teaching Skills (PhD school course) – grade: A
- Advanced topics in Deep Learning: the rise of Transformers (IT PhD course) – grade: Approved
- Data-driven approaches to uncertain optimization and decision-making: theory and applications (IT PhD course) – grade: Approved
- External course with evaluation (summer school) – grade: Approved

Research visits:

- Osservatorio Astronomico di Roma, Monte Porzio Catone, Italy (19 days, 2 visits)
- Center for Astrophysics | Harvard & Smithsonian, Cambridge, MA (109 days, 3 visits)
- MIT - Massachusetts Institute of Technology, Cambridge MA (5 days, 1 visit)
- IASF Milano, Milan, Italy (3 days, 3 visits)
- IUSS Pavia, Pavia, Italy (2 days, 2 visits)

August 2023 – **Master of Science in Physics** EQF 7

Linnéuniversitetet
P G Vejdes väg, 351 95 Växjö, Sweden

Number of ECTS credits: 120 – Erasmus Exchange with Insubria University (MSc in Physics)

52.5 ECTS credits already completed

Relevant courses (completed):

- Classical Electrodynamics (Linnaeus, 7.5 ECTS) – grade: A
- Mathematical methods for physics (Linnaeus, 7.5 ECTS) – grade: A
- Computational Physics I (credited, 7.5 ECTS) – grade: Approved
- Introduction to Quantum Computing (credited, 15 ECTS) – grade: Approved
- Research Methodology (credited, 7.5 ECTS) – grade: Approved
- Time-domain astrophysics (Insubria, 7.5 ECTS) – grade: 30/30 cum laude

July 2019 – October 2021 **Master's Degree in Computer Science and Engineering** EQF 7

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

Evaluation: 110/110 cum laude
Thesis: Identification of salient iconography features in artwork analysis
Part of the Double Degree path with the Norwegian University of Science and Technology (NTNU)
Number of ECTS credits: 120 (of which 40 transferred from NTNU)

August 2019 – October 2021 **Master of Science in Simulation and Visualization** EQF 7

Norwegian University of Science and Technology
Larsgårdsvegen 2, 6009 Ålesund, Norway

GPA: 4.8/5 (A)*
Thesis: Identification of salient iconography features in artwork analysis
Part of the Double Degree path with Politecnico di Milano
Number of ECTS credits: 120
* Calculated according to NTNU Academic Regulations, reported on `https://www.ntnu.no/studieavd/dok/Academic_Regulations.pdf`, Section 7-3 (As of October 2021).

July 2016 – July 2019 **Bachelor's Degree in Computer Science and Engineering** EQF 6

Polytechnic University of Milan – Como Campus
via Valleggio 11, 22100 Como, Italy

Evaluation: 107/110
Number of ECTS credits: 180

ACADEMIC PROJECTS

2025 – **TULiP (Timing the Ultra-Luminous X-ray Pulsars)**

INAF

Part of the research group

2024 – **High Performance Computing projects**

CINECA, Leonardo Supercomputer

Awarded 780,000 standard GPU hours on Leonardo as Principal Investigator (PI), 48,000 standard GPU hours as co-Investigator (col), and 375,000 standard CPU hours as PI for scientific computing projects.

2024 – **ENERGENIUS European Project**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

Part of the research group and Work Package 3 leader

2024 – **EXTraS (Exploring the X-ray Transient and variable Sky)**

INAF

Part of the research group

2021 – 2024 **PRECEPT European Project**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

Part of the research group

COMPLEMENTARY ACADEMIC COURSES AND SCHOOLS

July 2024 – August 2024 **ZTF Summer School 2024 – AI in Astronomy**

University of Minnesota, USA

The school focuses on AI and machine learning in time-domain astronomy. The program focuses on unsupervised and supervised learning, deep learning, simulation-based inference, and more.

May 2024 – May 2024 **8th School on Complex Networks Theory, Methods, and Applications**

Lake Como School of Advanced Studies
Villa del Grumello, 22100 Como, Italy

The school offers a succinct education in network science. The school aims to deepen both theoretical developments and applications in targeted fields.

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June 2023 – June 2023

15th Machine Learning and Advanced Statistics Summer School

Universidad Politécnica de Madrid, Av. de Montepríncipe, 28223 Madrid, Spain

The school offers intensive courses that aim to introduce both the theoretical foundations and the practical applications of modern statistical analysis techniques.

November 2022 – January 2023

Language and Cognition

EQF 7

Umeå Universitet
Universitetstorget 4, 901 87 Umeå, Sweden

Evaluation: Passed with distinction (VG)

The course explores foundational issues and methods in language and cognition, such as embodied cognition, linguistic relativity, and inner speech.

August 2022 – November 2022

Internet of Things

EQF 6

Kungliga Tekniska högskolan (KTH)
Brinellvägen 8, 114 28 Stockholm, Sweden

Evaluation: Passed

The focus of the course is on communication protocols for the Internet of Things. The course starts with an introduction to applications and network architecture. Thereafter, methods for communication protocols are treated, and how these methods can be applied in the design of important aspects of the communication protocol stack is shown.

August 2022 – November 2022

Introductory Modern Physics

EQF 6

Kungliga Tekniska högskolan (KTH)
Brinellvägen 8, 114 28 Stockholm, Sweden

Evaluation: A

This course covers the theory of relativity, early and modern quantum mechanics, atomic physics, molecular physics, laser physics, solid-state physics, nuclear physics, particle physics, astrophysics, and cosmology. The course ends with some of the latest on the Nobel Prize in Physics.

August 2022 – November 2022

Environmental Physics

EQF 6

Kungliga Tekniska högskolan (KTH)
Brinellvägen 8, 114 28 Stockholm, Sweden

Evaluation: B

This course covers the physics of solar energy, the carbon cycle, carbon-based, nuclear, and renewable energy, the Greenhouse effect, and how humankind affects the environment. The emphasis is on understanding the relevant physical principles and the ability to apply them to solve simple, practical problems.

August 2022 – October 2022

Introduction to Digital Humanities

EQF 7

Linnéuniversitetet
P G Vejdes väg, 351 95 Växjö, Sweden

Evaluation: B

The course focuses on the approaches used in the field of "digital humanities", from their definition to the evolution of this research area, and on some case studies.

January 2022 – February 2022

Climate Change and the Long-Term Future

Groningen University - Faculty of Philosophy
Oude Boteringestraat 52, 9712 GL Groningen, Netherlands

The Winter School consisted of 6 lecture tutorials where topics related to the theme of *Climate Change and the Long-Term Future* are discussed from different disciplinary viewpoints: Philosophy, Politics, and Economics (PPE).

`https://www.rug.nl/filosofie/organization/news-and-events/events/2022-toel/climate-change-and-the-long-term-future`

January 2022 – May 2022

Computational Physics: Introductory Course

EQF 6

Malmö University
Nordenskiöldsgatan 1, 211 19 Malmö, Sweden

Evaluation: Passed

The course provides knowledge and basic skills to use numerical methods for modeling physical systems using computational tools.

March 2019

Nuclear astrophysics: origin of the elements

Technische Universität Wien
1040 Wien, Austria

- Structure of the universe
- Basics of nuclear physics
- The early universe
- The physical state of stars
- Thermonuclear reactions
- Abundance of elements and nucleosynthesis
- The evolution of stars

Evaluation: A
(Part of the Athens programme)

November 2018

e-lab · Remotely controlled physics laboratories

Istituto Superior Técnico
Av. Rovisco Pais 1, 1049-001 Lisboa, Portugal

- Data fitting
- Numerical analysis
- Python for data analysis
- Experiments of mechanics, electromagnetism, optics, acoustics, and plasma physics.

Evaluation: B
(Part of the Athens programme)

November 2016 – July 2019

Scuola di Como

Scuola di Como

Merit-based school directed towards the formation of University Bachelor's students studying in Como. I was admitted as a scholarship student and maintained the scholarship for three years after having satisfied the merit requirements required by the school. I attended a theatre course, a Proficiency-level English course, a fundraising course, and a communication course, working with other students with different backgrounds (e.g., physics, mathematics, law, and humanities).

LANGUAGE COURSES

March 2022 – May 2022

French course – A1 level

Politecnico di Milano, Yellow Hub

40-hour course of introduction to the French language and culture.

September 2022 – December 2022

Portuguese course – A1 level

Politecnico di Milano, Yellow Hub

40-hour course of introduction to the Portuguese language and culture.

March 2017 – May 2017

English course – C2 level

Università degli Studi dell'Insubria, Scuola di Como

42-hours C2-level English course.

August 2016

English course

The Liverpool School of English

40 hours Upper Intermediate English course, held in Liverpool for a total duration of two weeks.

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July 2015 **English course**

ATC language schools at Maynooth University

36 hours C1-level general English course, held in Maynooth for two weeks.

July 2013 **English course**

ISIS Junior, at Stirling University

Upper Intermediate English course, held in Stirling for two weeks.

October 2011 - May 2012 **Spanish course attendance certificate**

CTP EDA
via Lucini, 3, 22100 Como, Italy

Intermediate level course.

July 2012 **English course**

ISIS Winchester

35 hours course held in Winchester, for two weeks.

MUSIC COURSES

November 2017 – July 2018 **Piano student**

Music Conservatory "Giuseppe Verdi"
via Luigi Cadorna, 4, 22100 Como, Italy

I studied with M° Carlo Schiavi and M° Daniela Manusardi in the context of pre-academic courses. In 2018, I took part in the course "History of Music" (M° Batisti).

November 2011 – July 2017 **Harpsichord student**

Music Conservatory "Giuseppe Verdi"
via Luigi Cadorna, 4, 22100 Como, Italy

I have achieved the first-period pre-academic certification in Harpsichord, studying with M° Susanna Piolanti and M° Giovanni Togni.

I participated in some of the concerts organized by Conservatorio and I have been part of the polyphonic chorus directed by M° Antonio Eros Negri, contributing to the recording of "*Echi di cielo in terre lombarde*".

HIGH SCHOOL-LEVEL COURSES

July 2014 – September 2014 **International Student Certificate**

Waiheke High School
11 Donald Bruce Road, Surfdale, Auckland 1081, New Zealand

I have studied in New Zealand for one term as an international student. I studied Spanish, ESOL, Chemistry, Physics, and Mathematics, receiving a scholarship from MIUR to cover travel and living expenses.

September 2011 – June 2016 **Scientific High School diploma**

Scientific High School "Paolo Carcano"
via Castelnuovo, 3, 22100 Como, Italy

Evaluation: 100/100.

WORK EXPERIENCE

October 2025 – **University tutor**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University tutor, for 5 hours, to assist students of the "Data bases 2" course. The topics covered during the course are concurrency control, triggers, JPA, physical databases, and ranking.

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September 2025 – **University learning assistant**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University teaching assistant, for 10 hours, to hold practical lectures for the students of the "Data bases 2" course. The topics covered during the course are concurrency control, triggers, JPA, physical databases, and ranking.

February 2025 – June 2025 **University learning assistant**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University teaching assistant, for 20 hours, to hold practical lectures for the students of the "Tecnologie Informatiche per il Web" ("Web technologies") course. The lectures focused on using servlets in Java, CSS, and JavaScript.

October 2024 – January 2025 **University tutor**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University tutor, for 5 hours, to assist students of the "Data bases 2" course. The topics covered during the course are concurrency control, triggers, JPA, physical databases, and ranking.

September 2024 – December 2024 **University learning assistant**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University teaching assistant, for 20 hours, to hold practical lectures for the students of the "Data bases 2" course. The topics covered during the course are concurrency control, triggers, JPA, physical databases, and ranking.

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September 2023 – December 2023 **University learning assistant**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University teaching assistant, for 20 hours, to hold practical lectures for the students of the "Data bases 2" course. The topics covered during the course are concurrency control, triggers, JPA, physical databases, and ranking.

February 2023 – June 2023 **University learning assistant**

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University teaching assistant, for 20 hours, to hold practical lectures for the students of the "Tecnologie Informatiche per il Web" ("Web technologies") course. The lectures focused on using servlets in Java, CSS, and JavaScript.

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University learning assistant

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University teaching assistant, for 20 hours, to hold practical lectures for the students of the "Data bases 2" course. The topics covered during the course are concurrency control, triggers, JPA, physical databases, and ranking.

February 2022 – June 2022

University learning assistant

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University teaching assistant, for 10 hours, to hold practical lectures for the students of the "Tecnologie Informatiche per il Web" ("Web technologies") course. The lectures focused on using servlets in Java, CSS, and JavaScript.

February 2022 – May 2022

Information technology for digital communication volunteer teacher

Third Age University *Alessandro Volta* ODV
Via Palestro 17, 22100 Como, Italy

This 9 lectures course focuses on digital communication technologies (e.g., for instant messaging) and the major security threats connected to their use.

December 2021 – November 2022

Research fellow

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

Research fellowship in *Data analysis with ML and CV techniques*. The research focused on the automatic analysis of paintings, Anomaly Detection problems in the framework of the European PRECEPT project, the use of evolutionary algorithms in astrophysics, and the application of multi-modal deep neural networks.

December 2021 – May 2022

University tutor

Polytechnic University of Milan
Piazza Leonardo da Vinci 32, 20133 Milan, Italy

University tutor, for 12 hours, to assist students of the "Data bases 2" course. The tutoring hours are dedicated to the Object Relational Mapping technique and focus on the mapping of entities, relationships and hierarchies, on the life cycle of managed objects and transactional support in the business layer. In particular, the Java Persistence API (JPA) is used.

September 2021 – October 2021

Learning assistant

Norwegian University of Science and Technology
Høgskoleringen 1, 7491 Trondheim, Norway

Learning assistant in the course "TDT4120 - Algoritmer og datastrukturer" (*Algorithms and data structures*) for a total duration of 37 hours. I assisted the students during the practical sessions. The main topics covered during the exercises were complexity theory, divide and conquer techniques, recursive methods, search and sort methods, dynamic programming, greedy algorithms, graphs, networks, spanning trees, and maximum flow.

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January 2021 – May 2021

Learning assistant

Norwegian University of Science and Technology
Larsgårdsvegen 2, 6009 Ålesund, Norway

Learning assistant in the course "IELEA2302 - Signalbehandling" (*Signal analysis*) for a total duration of 100 hours. I assisted the students during the practical sessions. The main topics covered during the course were systems theory, filter design, frequency analysis, correlation analysis, and image processing.

August 2020 – December 2020

Learning assistant

Norwegian University of Science and Technology
Larsgårdsvegen 2, 6009 Ålesund, Norway

Learning assistant in the course "IDATA2302 - Algoritmer og datastrukturer" (*Algorithms and data structures*) for a total duration of 100 hours. I assisted the students during the practical sessions. The main topics covered during the exercises were complexity theory, divide and conquer techniques, recursive methods, search and sort methods, dynamic programming, greedy algorithms, graphs, networks, spanning trees, and maximum flow.

August 2020 – August 2021

Programtillitsvalgt (programme student representative)

Norwegian University of Science and Technology
Larsgårdsvegen 2, 6009 Ålesund, Norway

Student representative for the Simulation and Visualization Master program. As a student representative, I participated in the meetings for the organization of the degree course for the subsequent years.

July 2020 – September 2020

Summer Research Student

Norwegian University of Science and Technology
Larsgårdsvegen 2, 6009 Ålesund, Norway

Research in the context of the PlastOPol project (`https://www.ntnu.no/iif/plastopol`). My responsibilities were related to data visualization and machine learning. In particular, I implemented a tool to visualize spatial data related to plastic pollution in the ocean, and I used convolutional neural networks to detect the presence of trash in pictures.

January 2020 – May 2020

Learning assistant

Norwegian University of Science and Technology
Larsgårdsvegen 2, 6009 Ålesund, Norway

Learning assistant in the course "IE203412 - Signalbehandling" (*Signal analysis*) for a total duration of 40 hours. I assisted the students during the practical sessions. The main topics covered during the course were systems theory, filter design, frequency analysis, correlation analysis, and image processing.

September 2019 – May 2020

Student assistant

Norwegian University of Science and Technology
Larsgårdsvegen 2, 6009 Ålesund, Norway

Student assistant in the project "Adaptiv læringsverktøy" (*Adaptive learning tools*) for a total of 100 hours. The project focused on maintaining and developing a Moodle-based test administration platform that automatically adapts to learners' abilities.

June 2015

Intern

University of Insubria – department of theoretical and applied sciences
via Valleggio 11, 22100 Como, Italy

- Realization of an algorithm for the recognition of voltammetric and gaschromatographic peaks
- Realization of Excel sheets to collect data concerning air and chemical solutions analysis
- Sampling and analysis of water in Gravedona (Como)

(Project of Alternanza Scuola-Lavoro conducted with Professor Carlo Dossi for 70 hours).

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January 2014 – February 2014

Intern

Polytechnic University of Milan – Como Campus
via Valleggio 11, 22100 Como, Italy

- Realization of an application to map street furniture
- Use of the application in the Como area

(Project of Alternanza Scuola-Lavoro conducted with Dr. Alba Lucchese and professor Antonia Brovelli).

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C1	C1	C1
	EF SET Certificate (Proficiency, CEFR C2 - 81/100) and Institutional TOEIC - Listening and Reading (990/990)				
Spanish	B1	B2	B1	B2	B2

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

Communication and interpersonal skills

- Good communication skills acquired during high school, Conservatorio, language courses, University, and Scuola di Como. In particular, I improved my communication skills by taking part in the Communication and Argumentation course taught by Professor Nicoletta di Blas at Politecnico di Milano.
- Good interpersonal skills strengthened during my experience as a student representative, when I had to work with other students, other representatives, and professors on University projects, both in Italy and Norway, and during the collaboration in scientific research in international multi-cultural teams.

Organisational and job-related skills

- Good organizational skills acquired while studying for the Double Degree path in Italy and Norway, carried along while working as a student representative, as a student assistant and a learning assistant, pursuing both degrees in two years rather than three.
- Good teamwork skills acquired by participating in University projects, contests, and courses attended at Scuola di Como, volunteering at Circolo di Scacchi Città di Como, and working as a student representative with other students and professors.
- Ability to collaborate with the other members of a group, acquired during Alternanza Scuola-Lavoro internships, on the occasion of contests and university projects, and during Scuola di Como courses.

Digital competences

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

Digital competences - Self-assessment grid

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- Programming languages:
  - Deep knowledge of C and C++, acquired during the *Fondamenti di informatica* course at Politecnico di Milano.
  - Deep knowledge of Java, acquired during the *Software Engineering* course at Politecnico di Milano and deepened in the realization of projects in the *Software Engineering*, *Web Technologies* and *Data bases 2* courses.
  - Good knowledge of Python, acquired during the Master thesis development, the *Software Engineering 2* course, the *Machine Learning course*, and the *Computer Graphics* courses.
  - Good knowledge of SQL, acquired during the *Data bases* and *Data bases 2* courses.
  - Basic knowledge of *Assembly*, acquired during the *Computer Architectures*, *Advanced Computer Architectures* and *Computer Security* courses.
  - Discrete knowledge of C#, acquired during the *Computer Graphics 1* course in combination with Unity 3D for the development of interactive 3D visualization applications.
  - Good knowledge of JavaScript, acquired during the *Web technologies* course and applied in several research projects and subsequent courses (including *Computer Graphics*, *Data bases 2*, and *Data processing and visualization*).
  - Good knowledge of MATLAB, acquired during the *Foundations of signals and systems*, *Modelling and simulation of dynamic systems* and *Numerical analysis* courses.
- Graphical interfaces and visualization:
  - Good command of Qt creator, combined with C++.
  - Good command of Tkinter, combined with Python.
  - Good command of Dash, combined with Python for the implementation of the research project in the *Data processing and visualization* course at NTNU;
  - Good command of HTML and CSS, used in the *Web technologies* and *Computer graphics* courses;
  - Good command of Plotly, combined with Python, acquired in the *Data processing and visualization* course, in the development of the Master thesis and the *Computer graphics* courses.
  - Good command of Unity 3D, acquired during the *Computer Graphics* course.
  - Discrete command of Blender acquired during the *Introduction to Applied Simulation and Visualization* course.
- Documents elaboration:
  - Good command of Microsoft Office, LibreOffice, and OpenOffice suites (spreadsheets, word processor, presentations, database management).
  - Good command of LaTeX acquired in the preparation of the high school short thesis, project report, scientific papers, Master thesis, and presentations.
- Websites management:
  - Good command of Altervista and WordPress acquired during the development and maintenance of websites (e.g., `https://navontnu.org/` and `http://comoscacchi.it/`).
  - Good knowledge of HTML and CSS.
- Operating systems and virtual machines:
  - Good command of VirtualBox.
  - Good command in the use of Windows, Android, ReactOS, and Linux (Raspbian, Ubuntu and its main derivatives, Debian, ElementaryOS).
- Other:
  - Good command of musical notation software (e.g., Finale and MuseScore).
  - Basic knowledge of AutoCAD.
  - Good command of conceptual mapping tools (e.g., CMap and FreeMind).
  - Good command of git.

Driving licence B

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HONOURS AND AWARDS

2026 **Global Young Scientists Summit admission**
GYSS 2026
Selected to participate in the Global Young Scientists Summit 2026, hosted by the National Research Foundation, Singapore.

2025 **NVIDIA Academic Grant Program**
NVIDIA
Hardware grant of 4 NVIDIA RTX PRO 6000 GPUs GPUs for the project *Discovering Pulsars with Physics-Informed Machine Learning*. Project collaborator (PI: Piero Fraternali).

2021 **Nomination for the "AI Master's Thesis Awards 2021"**
NTNU
The best NTNU theses in Artificial Intelligence have been nominated for the prize. I ranked 4th among the 12 nominated students.

2020 – 2021 **Masterstipend innan kultur (scholarship in culture)**
Møre og Romsdal fylkeskommune
The master's scholarships are awarded to students who write master's theses that can contribute to building knowledge about the cultural life in Møre og Romsdal and which shed light on current issues in the county.

2019 – 2021 **Double Degree Scholarship**
European Union, Politecnico di Milano
Scholarship for supporting the Double Degree program, for two years, involving Politecnico di Milano and the Norwegian University of Science and Technology.

2017 – 2020 **High merit Scholarship**
Politecnico di Milano
Merit-based exemption from University taxes because of high merits. The exemption was obtained for the academic years 2017-2018, 2018-2019, and 2019-2020 because the average of the grades was greater or equal to 27, and I satisfied the minimum credits requirements.

2016 – 2019 **Scuola di Como Scholarship**
Scuola di Como (Fondazione Alessandro Volta)
Merit-based scholarship to support the top six selected students taking part in *Scuola di Como*. Students were selected based on merit during the first year of the BSc programs held in Como in Conservatorio di Como, Università degli Studi dell'Insubria, Accademia Aldo Galli, and Politecnico di Milano. The scholarship was awarded for three consecutive years after having verified the maintenance of merit requirements.

2017 **Finalist in the "Smart Civis" contest**
Part of one of the finalist teams for the 2016/2017 edition. Winner of an internship with Siemens.

2016 **UBI Banca Scholarship**
UBI Banca
Scholarship awarded to the best students in the fifth year of their studies at the scientific high school "Paolo Carcano" in Como.

2014 **High School Programme Scholarship**
INPS – MIUR
Scholarship awarded to the top 7 selected students for a one-term (three months) study exchange in New Zealand, to cover travel and living expenses.

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COURSES AND CERTIFICATIONS

December 2024 **Candidate National Chess Arbiter**
Issued by the Italian Chess Federation.
Qualification for referees recognized by the Italian Chess Federation (FSI), which allows directing all the tournaments with Elo Blitz and Elo Rapid variations in Italy, in addition to some tournaments with Elo Standard variations.

June 2022 **Designing Learning Innovation**
Provided by Politecnico di Milano as a MOOC.
This course covers various aspects of learning innovation, including the rationale behind it, intended learning outcomes, assessment, pedagogical frameworks, and the use of the Learning Innovation Network for designing active classrooms and integrating external resources, culminating in the monitoring of innovative teaching and learning experiences.
https://www.pok.polimi.it/certificates/4df159050eb948a2a67274eb726897b5

April 2022 **Regional Chess Arbiter**
Issued by the Italian Chess Federation.
Qualification for referees recognized by the Italian Chess Federation (FSI), which allows directing only tournaments with Elo Blitz and Elo Rapid variations in Italy.

December 2021 **Introduction to Dynamical Systems and Chaos**
Provided by Santa Fe Institute.
Introductory course on the study of dynamical systems, focusing on phase space, bifurcations, chaos, the butterfly effect, strange attractors, and pattern formation.
https://www.complexityexplorer.org/courses/120-introduction-to-dynamical-systems-and-chaos/certificates/2233729026

December 2021 **Fractals and Scaling**
Provided by Santa Fe Institute.
The course presents an overview of how ideas from fractals and scaling are used to study complex systems.
https://www.complexityexplorer.org/courses/118-fractals-and-scaling/certificates/2240217090

December 2021 **Introduction to Complexity**
Provided by Santa Fe Institute.
The course focuses on dynamics, chaos, fractals, information theory, computation theory, evolution and adaptation, agent-based modeling, and networks.
https://www.complexityexplorer.org/courses/119-introduction-to-complexity/certificates/2233794562

October 2021 **Tra Scienza e Letteratura**
Lake Como School of Advanced Studies
Villa del Grumello, 22100 Como, Italy
This is the third edition of the "Tra Scienza e Letteratura" (Between Science and Literature) school, whose purpose is to establish or rediscover the bridges between scientific culture and literature, philosophy, and art.
https://scli2.lakecomoschool.org/

August 2021 **Il trattamento dei dati personali nella ricerca statistica e scientifica**
Provided by Politecnico di Milano.

March 2021 **Communication skills for engineering scholars**
Provided by Politecnico di Milano as a MOOC.
The course teaches engineering scholars how to improve their communication skills using theory, examples, and practical exercises. Topics include the basics of rhetoric (how to be clear), the basics of argumentation theory (how to be persuasive), public speaking, grant writing, and scientific writing.
https://www.pok.polimi.it/certificates/93c6ea1625ab454fbcf4b0e62265c036

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December 2020 **Sequences, Time Series and Prediction**
Provided by deeplearning.ai on Coursera.
The course focuses on building time series models in TensorFlow using RNNs and 1D ConvNets for making predictions.
http://coursera.org/verify/HGK7C9LKJLLN

November 2020 **COVID19 Data Analysis Using Python**
Provided by Coursera.
This project-based course shows how to preprocess and merge datasets to calculate needed measures and prepare them for analysis. The focus is a COVID-19 dataset published by John Hopkins University, which consists of the data related to the cumulative number of confirmed cases per day in each country.
https://www.coursera.org/verify/7RA97GWHTFZ3

November 2020 **COVID19 Data Visualization Using Python**
Provided by Coursera.
This course uses a COVID-19 dataset containing the data related to the cumulative number of confirmed, recovered, and death cases. Its goal is to use the Plotly module to plot graphs on this phenomenon.
https://www.coursera.org/verify/H6JUJTQSHAH2

November 2020 **Compare time series predictions of COVID-19 deaths**
Provided by Coursera.
This course focuses on using mainly deep learning and tree-based methods to predict the evolution of COVID-19 deaths.
https://www.coursera.org/verify/Y5MLRVYATK6M

November 2020 **Convolutions for Text Classification with Keras**
Provided by Coursera.
The course focuses on text classification using 1D Convolutions with Keras. Relevant case studies include applying word embeddings for text classification, using 1D convolutions as feature extractors in natural language processing (NLP), and performing binary text classification using deep learning.
https://www.coursera.org/verify/UAATKSNWXPC6

November 2020 **Dimensionality Reduction using an Autoencoder in Python**
Provided by Coursera.
The course focuses on preprocessing a high-dimensional dataset before training a baseline PCA model, on the theory behind the autoencoder, and how to train one in scikit-learn to reduce the initial data dimensionality.
https://www.coursera.org/verify/6AQ9UEE2HMBT

November 2020 **Game Theory with Python**
Provided by Coursera.
The course concerns game theoretic concepts. In particular, it focuses on two-player static and dynamic games and pure and mixed strategy Nash Equilibria for static games.
https://www.coursera.org/verify/MUX3Z7R293BN

November 2020 **Generate Synthetic Images with DCGANs in Keras**
Provided by Coursera.
The course concerns the use of Generative Adversarial Networks (GANs) using the Keras Sequential API with Tensorflow 2 as the backend.
https://www.coursera.org/verify/TFY98UH3UV9J

November 2020 **Tweet Emotion Recognition with TensorFlow**
Provided by Coursera.
The course focuses on building a recurrent neural network and training on a dataset of tweets to learn how to recognize emotions within them using multiple classes.
https://www.coursera.org/verify/BJZNL9T4TN46

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October 2021 **Electronics for Sound and Music**
Provided by Politecnico di Milano as a *Passion in Action* course.
The course is aimed at acquiring a basic knowledge of electronic instrumentation for analog and digital processing of audio signals with an in-depth study of the architecture and functions of a professional console mixer.
https://bestr.it/verify/UHDXIVVBTT

October 2021 **Simple Recurrent Neural Network with Keras**
Provided by Coursera.
This course presents the use of Keras with TensorFlow as its backend to create a recurrent neural network model and train it to learn to perform the addition of simple equations given in string format.
https://www.coursera.org/verify/JAYQN3SRA87S

August 2020 **Explainable AI: Scene Classification and GradCam Visualization**
Provided by Coursera.
This course focuses on training a deep learning model to predict the type of scenery in images and on using Grad-Cam to explain its choices.
http://coursera.org/verify/LMVTK4F5FNGL

May 2020 **AstroTech: The Science and Technology behind Astronomical Discovery**
Provided by the University of Edinburgh on Coursera.
The course explains how astrophysical instrumentation technology works, how it has allowed us to collect astronomical data, and, with some basic physics, how we interpret the data to make scientific discoveries.
https://www.coursera.org/verify/RL78QUCL5J9N

April 2020 **Data-driven astronomy**
Provided by the University of Sydney on Coursera.
The course investigates the challenges of working with large datasets: how to implement algorithms that work, how to use databases to manage your data, and how to learn from your data with machine learning tools.
http://coursera.org/verify/FPQUAJYQULNL

January 2020 **Survey Research Methodology**
Provided by Politecnico di Milano as a MOOC.
The course provides an introduction to the survey research methodology aimed at collecting and analyzing data in theses.
https://www.pok.polimi.it/certificates/7ba36e1f7a3746c584e91ef5e264aab6

January 2020 **Writing in the Sciences**
Provided by Stanford University (online).
Passed with Distinction.
This course teaches scientists to become more effective writers using practical examples and exercises. Topics include principles of good writing, strategies for writing faster and with less anxiety, the format of a scientific manuscript, and issues in publication and peer review.

February 2018 **Corso di formazione generale lavoratori per la sicurezza sul lavoro**
Unindustria Servizi
Course aimed at introducing the concepts of risk, prevention and protection and the application of such concepts in the workplace.

September 2016 **Differential equations and their symmetries via mathematical models**
Provided by Blekinge Tekniska Högskola.
The course focuses on mathematical models formulated in terms of ordinary and partial differential equations.

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2015 **Astrophysics course**
Scientific High School "Galileo Galilei"
Via Volontari Della Libertà, 22036 Erba, CO, Italy
Astrophysics course held by professor Corrado Lamberti for four months.

SELECTED PROJECTS

January 2020 – December 2022 **NAVO NTNU**
In Roboboat, student teams design and build Autonomous Surface Vehicles (ASV) and compete in an international competition. Roboboat competitions unite an enhanced community of innovators with results capable of making substantive contributions to the maritime field. In this project, I am managing the website.

November 2020 – December 2020 **CODAV**
`https://github.com/nicolopinci/CODAV`
Application for the analysis and the visualization of coronavirus data and the impact COVID has on education worldwide.

November 2020 – December 2020 **Unity City**
`https://github.com/nicolopinci/UnityCity`
Creation of a smart city simulator using Unity 3D and C#, in the context of the 2020/2021 edition of the *Computer Graphics 1* course.

January 2020 – May 2020 **Smart Ocean Cleaner – the gamification platform prototype**
`https://github.com/nicolopinci/smartOceanCleaner`
This proposal relies on a web application that provides the gamification interface. The autonomous vessel can collect the waste from the ocean and analyze it automatically using a computer vision system. The web application's purpose is to allow the user to manually sort the waste so that the data can then be stored in a database and compared with the data from the automatic computer vision system.

February 2020 – March 2020 **Genetic algorithm for classroom allocation**
`https://github.com/nicolopinci/geneticTimetable`
A genetic algorithm to allocate rooms with a limited capacity to host events, each with a certain number of participants. The goal is to maximize the number of satisfied people (that is, the number of people who participate in the events).

January 2020 – February 2020 **Fjarora**
`https://github.com/nicolopinci/fjarora`
Realization of a (smart) city simulator to support the decision-making process in urban development-related tasks. Created in the context of the 2019/2020 edition of the *Computer Graphics 2* course at NTNU using JavaScript and `three.js`.

April 2019 – July 2019 **Illegal landfills mapping application**
`https://github.com/nicolopinci/SaveThePlanet` (accessible on request)
Creation of a web application for the validation of aerial images of places at risk due to the presence of illegal landfills with a crowd-sourcing approach. Built using Java EE (server side) on a Tomcat server, JavaScript, HTML, and CSS (client side). This project was developed in the context of the *Web technologies* course.

October 2018 – December 2018 **Distributed application for traffic management**
`https://github.com/nicolopinci/traffic-monitor`
Creation of a system for the integrated monitoring and control of city traffic from sub-systems that are composed in a distributed way.

October 2016 – January 2017 **Scrabble game**
`https://github.com/nicolopinci/scarabeo`
C++ application that allows playing the *Scrabble* game locally. It can find the best word based on the available letters. This project was part of the *Fondamenti di informatica* course.

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VOLUNTEERING

February 2022 – May 2022 **Third Age University *Alessandro Volta* ODV**
"Information technology for digital communication" volunteer teacher.

January 2020 – December 2022 **NAVO NTNU**
Development and maintenance of NAVO NTNU's website – `https://navontnu.org/`.

August 2019 – August 2021 **Norwegian University of Science and Technology**
Class student representative (KTV).

April 2019 – **Circolo di Scacchi "Città di Como"**
Occasional contribution to the maintenance of Circolo di Scacchi "Città di Como" website – `http://comoscacchi.it/`.

PUBLICATIONS

[1] Riccardo Campi, **Nicolò Oreste Pinciroli Vago**, Mathyas Giudici, Pablo Barrachina Rodriguez-Guisado, Marco Brambilla, and Piero Fraternali. "A Graph-Based RAG for Energy Efficiency Question Answering". In: Web Engineering. Ed. by Himanshu Verma, Alessandro Bozzon, Andrea Mauri, and Jie Yang. Cham: Springer Nature Switzerland, Oct. 2025, pp. 41–55.

[2] Arianna Miraval Zanon, Filippo Ambrosino, Giulia Illiano, Alessandro Papitto, Gian Luca Israel, Francesco Coti Zelati, Luigi Stella, Tiziana Di Salvo, Sergio Campana, Giampaolo Benevento, **Nicolò Oreste Pinciroli Vago**, Maria Cristina Baglio, Piergiorgio Casella, Paolo D'Avanzo, Domitilla de Martino, Matteo Imbrogno, Riccardo La Placa, and Sara Elisa Motta. "An Ultraviolet Burst Oscillation Candidate from the Low-Mass X-ray Binary EXO 0748–676". In: Astronomy & Astrophysics 702 (Oct. 2025), A228. DOI: 10.1051/0004-6361/202555270. URL: https://doi.org/10.1051/0004-6361/202555270.

[3] **Nicolò Oreste Pinciroli Vago**, Juan Rafael Martínez-Galarza, and Roberta Amato. "Extracting latent representations from X-ray spectra. Classification, regression, and accretion signatures of Chandra sources". In: (Oct. 2025). arXiv: 2510.14102 [astro-ph.IM]. URL: https://arxiv.org/abs/2510.14102.

[4] **Nicolò Oreste Pinciroli Vago**, Roberta Amato, Matteo Imbrogno, Gian Luca Israel, Andrea Belfiore, Konstantinos Kovlakas, Piero Fraternali, and Mario Pasquato. "The Hunt for New Pulsating Ultraluminous X-ray Sources: A Clustering Approach". In: Astronomy & Astrophysics (Aug. 2025). DOI: 10.1051/0004-6361/202553739.

[5] **Nicolò Oreste Pinciroli Vago** and Piero Fraternali. "Multimodal Multi-Output Ordinal Regression for Discovering Gravitationally-Lensed Transients". In: Machine Learning: Science and Technology 6.2 (June 2025), p. 025067. DOI: 10.1088/2632-2153/ade360.

[6] Francesca Forbicini, **Nicolò Oreste Pinciroli Vago**, and Piero Fraternali. "Time Series Analysis in Compressor-Based Machines: A Survey". In: Neural Computing and Applications 37.17 (June 2025), pp. 11001–11038. DOI: 10.1007/s00521-025-11065-0.

[7] Riccardo Campi, Mathyas Giudici, **Nicolò Oreste Pinciroli Vago**, Marco Brambilla, and Piero Fraternali. "Enhancing Human-AI Collaboration through a Conversational Agent for Energy Efficiency". In: Proceedings of the AAAI Symposium Series 5.1 (May 2025), pp. 52–55. DOI: 10.1609/aaaiss.v5i1.35554.

[8] F. Pintore, C. Pinto, G. Rodriguez-Castillo, G. L. Israel, **Nicolò Oreste Pinciroli Vago**, S. Motta, F. Barra, D. J. Walton, F. Fuerst, P. Kosec, C. Salvaggio, M. Del Santo, A. Wolter, M. Middleton, A. D'Aì, E. Ambrosi, L. Burderi, M. Imbrogno, R. Salvaterra, and A. Robba. "A New Pulsating Neutron Star in the Ultraluminous X-ray Source NGC 4559 X7?" In: Astronomy & Astrophysics 695 (Mar. 2025), A238. DOI: 10.1051/0004-6361/202453240.

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[9] Juan Rafael Martínez-Galarza, **Nicolò Oreste Pinciroli Vago**, Shivam Raval, Carolina Cuesta-Lazaro, Melanie Weber, David Alvarez-Melis, Alberto Accomazzi, Cecilia Garraffo, Joshua Knutson, Ryan Thill, Christopher B. Green, and Imantha Ahangama. "Augmenting X-ray Astronomical Representations with Scientific Knowledge through Contrastive Learning". In: Second Workshop on Representational Alignment at ICLR 2025. Mar. 2025.

[10] Gian Luca Israel, Roberta Amato, Matteo Imbrogno, **Nicoló Oreste Pinciroli Vago**, and a Larger Team. "Beyond Accretion Limits: The Rise of Pulsating Gems". In: Astronomische Nachrichten 346.1 (Jan. 2025), e20240102. DOI: 10.1002/asna.20240102.

[11] **Nicolò Oreste Pinciroli Vago**, Francesca Forbicini, and Piero Fraternali. "Predicting Machine Failures from Multivariate Time Series: An Industrial Case Study". In: Machines 12.6 (2024), p. 357.

[12] A. Sacchi, M. Imbrogno, S. E. Motta, P. Esposito, G. L. Israel, **Nicolò Oreste Pinciroli Vago**, A. De Luca, M. Marelli, F. Pintore, G. A. Rodríguez Castillo, R. Salvaterra, and A. Tiengo. "The Restless Population of Bright X-ray Sources of NGC 3621". In: Astronomy & Astrophysics 689 (Sept. 2024), A217. DOI: 10.1051/0004-6361/202450319.

[13] Niccoló Zangrando, Piero Fraternali, Rocio Nahime Torres, Marco Petri, **Nicoló Oreste Pinciroli Vago**, and Sergio Herrera. "ODIN AD: A Framework Supporting the Life-Cycle of Time Series Anomaly Detection Applications". In: Advanced Analytics and Learning on Temporal Data. Ed. by Thomas Guyet, Georgiana Ifrim, Simon Malinowski, Anthony Bagnall, Patrick Shafer, and Vincent Lemaire. Vol. 13812. Cham: Springer International Publishing, 2023, pp. 181–196. DOI: 10.1007/978-3-031-24378-3_12.

[14] **Nicolò Oreste Pinciroli Vago** and Piero Fraternali. "DeepGraviLens: A Multi-Modal Architecture for Classifying Gravitational Lensing Data". In: Neural Computing and Applications 35.26 (Sept. 2023), pp. 19253–19277. DOI: 10.1007/s00521-023-08766-9.

[15] Federico Milani, **Nicolò Oreste Pinciroli Vago**, and Piero Fraternali. "Proposals Generation for Weakly Supervised Object Detection in Artwork Images". In: Journal of Imaging 8.8 (2022), p. 215.

[16] Niccolò Zangrando, Piero Fraternali, Marco Petri, **Nicolò Oreste Pinciroli Vago**, and Sergio Luis Herrera González. "Anomaly Detection in Quasi-Periodic Energy Consumption Data Series: A Comparison of Algorithms". In: Energy Informatics 5.S4 (Dec. 2022), p. 62. DOI: 10.1186/s42162-022-00230-7.

[17] **Nicolò Oreste Pinciroli Vago**, Federico Milani, Piero Fraternali, and Ricardo da Silva Torres. "Comparing CAM Algorithms for the Identification of Salient Image Features in Iconography Artwork Analysis". In: Journal of Imaging 7.7 (2021), p. 106.

[18] **Nicolò Oreste Pinciroli Vago**, Mario Sacaj, Mersedeh Sadeghi, Safia Kalwar, Andreas Vogelsang, and Matteo Giovanni Rossi. "On the Visualization of Semantic-Based Mappings". In: 2939 (2021).

[19] **Nicolò Oreste Pinciroli Vago**, Ibrahim A. Hameed, and Michael Kachelriess. Using Convolutional Neural Networks for the Helicity Classification of Magnetic Fields. June 2021. DOI: 10.48550/arXiv.2106.06718. arXiv: 2106.06718 [astro-ph].

[20] **Nicolò Oreste Pinciroli Vago**, Yuri Cossich Lavinas, Daniele C. Uchoa Maia Rodrigues, Felipe A. Moura, Sergio Augusto Cunha, Claus Aranha, and Ricardo da Silva Torres. "INTEGRA: An Open Tool To Support Graph-Based Change Pattern Analyses In Simulated Football Matches." In: ECMS. 2020, pp. 228–234.

PROFILES

- Google Scholar: https://scholar.google.com/citations?user=DwktRQOAAAAJ
- DBLP: https://dblp.org/pid/294/9976.html
- Semantic Scholar: https://www.semanticscholar.org/author/1713729726
- orcId: https://orcid.org/0000-0001-7906-4987

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