

CURRICULUM VITAE

Name and contact information

Eleonora Panini

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Professional and work experience

- **PhD researcher in Physics Education**- Unimore (01/11/2024-**present**)
- **Physical education teacher at secondary school** (A048)-(09/2022-present) - Public Ordinary Concorso 2020, start role in 09/2022 in ITIS Galilei Livorno, mobility to IPSIA Cattaneo Deledda, Modena (09/2023-**present**)
- **Local police agent**-Castelfranco Emilia (MO) (05/2019-08/2022) Public Concorso CFL 2018
- **Post-sales and Service chief**- Honda automotive-Automotive club, Modena (06/2018-05/2019)
- **Research project**: teaching the martial arts of jeet kune do at secondary school, Sport lessons at Secondary schools, Modena (01/2018-05/2018)
- **Sport science expert and tutor** at primary and secondary school in Modena (a.s. 2017/2018)
- **Product expert Mercedes-Benz**-Autotorino, Modena (06/2016-12/2017)
- **Mechanical Designer** for Ferrari automotive- Bieffe project, Maranello (MO) (11/2015-05/2016)
- **Cashier and merchandising** at Coop Estense, Grandemilia shopping center, via Emilia Ovest, Modena (From 10/2015 to 01/2016)

Further professional experience in Sport science and education:

- **External observer for Invalsi tests**: State vocational institute for social, commercial, and artisanal services Cattaneo-Deledda (str. degli Schiocchi, 110 Modena) 8-9/05/2018
- **External Martial Arts expert in secondary school**: Jeet Kune Do Project at the upper secondary school Liceo artistico Venturi (via Rainusso 66, Modena), Liceo classico San Carlo-Muratori (via Cittadella 50, Modena), Liceo scientifico Wiligelmo (via Corassori 101, Modena), Liceo classico Muratori-San Carlo (via Cittadella 50, Modena), lower secondary school Ferraris (via Divisione Acqui 160, Modena) school year 2017/2018
- **School sports tutor** (External Physical Education expert in primary school) MIUR-CONI National Project "Scuola-Sport di classe" From 01/2018 to 06/2018 at the Educational Directorate 1st district Formigine (MO) - Carducci primary school (via H. Pagani, 23 Formigine) and Ferrari primary school (via Mons. Cavazzuti, 18 Formigine) - Motor education 4th-5th grades school year 2017/2018
- **Sport education/psychomotricity expert for primary school** (From 01/2018 to 03/2018): Psychomotricity project in primary school at Comprehensive Institute 4 of Modena (via Divisione Acqui, 160) - Saliceto Panaro primary school (via Girolamo Frescobaldi, 10 Modena) and Palestrina primary school (via Benedetto Marcello, 51 Modena) - Psychomotor education 1st grades school year 2017/18
- **Weight room and fitness instructor** at New Fitness gym (From 10/2014 to 07/2015)

- **Basketball instructor** at Modenese basketball club SBM
- **Volleyball instructor** at Anderlini Modena volleyball club

Education - Titles

Physics

- **PhD in Physics and Nanoscience**, Unimore (40° cycle:2024-2027)
University, Campi Street, Modena - **Ongoing 3° year**
Research area: **Physics education**
Topic: Cosmo-Edu-Lab: an educational software to introduce Cosmology in Physics program at secondary school
Founded Project FAR-Unimore 2026-2028: "From dark matter to a bright school: an interdisciplinary educational pathway through cosmology"
Supervisors: Prof. Enrico Bertuzzo, Prof. Guido Goldoni
1^year a.y. 2024/25, 2°year a.y.2025/26, 3° year 2026/27

Computer Engineering

- **Master Degree in Computer engineering (LM-32), curriculum Big Data**
Nettuno University, Vittorio Emanuele II street,39, Rome
Experimental Thesis in Machine Learning: "Generative Adversarial Networks for Comics: from latent vector analysis to quantum circuits model"
Graduation: 24/05/2024 -110 Honors/110 - Weighted Average: 29.0 - a.y.2023/2024
- **Bachelor Degree in Information and communication technology engineering (L-8)**
Nettuno University , Vittorio Emanuele II street,39,Rome
Experimental Thesis in Physics: "The analysis of CSES satellite data:the trend of electric field's amplitude from VLF data"
Graduation: 22/11/2022- 110/110 - Weighted Average: 27.5 - a.y.2021/2022

Sport science

- **Master degree in Sport Management (LM-47)**
Pegaso University, Trieste and Trento square,48, Naples
Graduation: 14/07/2017 - 97/110 - a.y. 2016/2017
Thesis: "The spread of the sport phenomena in the world"
- **Bachelor degree in Sport Science (L-22) (180 CFU)**
Pegaso University, Trieste and Trento square,48, Naples
Graduation: 06/10/2015 - 98/110 - a.y.2014/2015
Thesis: "The martial art of Jeet Kune Do"

Secondary school

- **Secondary school diploma: Scientific Liceo**
Scientific Liceo Wiligelmo, Corassori street 101, Modena
Graduation: 07/2011 - 72/100 s.y. 2010/2011

Other titles in Education (post-graduate)

- **Teaching qualification Sport science (cdc A048 scienze motorie e sportive) for secondary school II°:** Concorso ordinario DD499/2020 DD23/2022 Emilia Romagna 03/05/2022 (Result:75/100)

- **Teaching qualification Sport science (cdc A049 scienze motorie e sportive) for secondary school I°:** Concorso ordinario DD499/2020 DD23/2022 Emilia Romagna 20/01/2023 (Result:78/100)
- **Teaching qualification Computer science (cdc A041 Scienze e tecnologie informatiche) for secondary school:** UniLink (Rome), 30 CFU (180h), exam 06/03/2026 Vote: 10/10
- **Teaching qualification Physics (cdc A020 Fisica) for secondary school:** Unitelma Sapienza (Rome), 30 CFU (180h), exam 28/10/2025 Vote: 10/10
- **Post-graduate master (2° level) DSF2 (education): Il dirigente scolastico – funzioni competenze responsabilità nel sistema scolastico italiano (60C FU)** Ecampus University, Novedrate (CO) , exam October 2026
- **Post-graduate master (1° level) MA945 (education): CLIL (content language integrated learning) (60 CFU)**
Pegaso University, Trieste and Trento square,48, Naples
Graduation: 14/03/2020 - 30/30 - a.y.2019/2020
- **Post-graduate master (1° level) MA877 (education): The instructional design 3.0 in the physical education and sport science (60 CFU)**
Pegaso University, Trieste and Trento square,48, Naples
Graduation: 12/04/2019 - 29/30 - a.y.2018/2019
- **Post-graduate master (2° level) MA654 (education): The role of teacher and PTOF (didactics, inclusion, assessment) (60 CFU)**
Pegaso University, Trieste and Trento square,48, Naples
Graduation: 07/05/2018 - 29/30 - a.y. 2017/2018
- **24 CFU for teaching:** Pegaso University, Trieste and Trento square,48, Naples

Language Skills:

- **English level C1:** Gatehouse Classic IESOL certificate- 13/06/2020 , Cambridge First certificate B2 level 17/04/2018
- **German level A2:** DAF language school, Modena, 2015
- **Spanish level A2:** Exam Pegaso University, 2016
- **French level A2:** Exam Pegaso University, 2015

Digital skills:

- **Medium level coding: Python** (Google Colab, Jupyter, Pycharm, Spyder, VScode)
- **Base level coding: C** (Codeblocks), **Java** (Eclipse), **SQL** (MySQL), **C++**(Dev, VisualStudio), **R** (Rstudio)
- **Design SW base level:** AS400, Autocad, CatiaV5, Inventor, VPM, Photoshop
- **Utilities advanced level: Microsoft Office (Excel, Word, Power point, Access)**
- **Database base level:** Sipadx
- **Operating systems:** Windows, Linux (Ubuntu)

PhD Courses

- **Physics education: theoretical & experimental methods:** E. Tufino- FIM Unimore (2026, 48h)
- **Theoretical astroparticle physics:** E. Bertuzzo - FIM Unimore (2026, 48h)
- **AI in Physics Education & STEM:** E. Tufino - FIM Unimore (12/2025-02/2026, 9h)
- **Theory & numerical simulation of mass, charge, heat transport:** S. Baroni & F. Grasselli (12/2025, 10h) - Exam 25/02/2026
- **An introduction to Python: from fundamentals to HPC:** N. Spallanzani & M. Govoni (01-02/2026, 20h) - Exam 23/02/2026

- **The Standard Model of Particle Physics:** E. Bertuzzo (01-02/2026, 16h) - Exam 27/02/2026
- **Plasmonics:** Luca Bursi - FIM Unimore (27/11/2024, 3h)
- **Fundamentals of DNA Nanotechnology:** Denis Garoli - FIM Unimore (11/2024, 3h)
- **Fundamentals of Quantum Technologies:** Marco Affronte - FIM Unimore (12/2024, 8h) - Exam 24/01/25
- **Introduction to the science of Nanomaterials:** S. D'Addato - FIM Unimore (02/2025, 8h)
- **Introduction to Random variables and Complex systems:** A. Petri - CNR-ISC Roma (03-04/2025, 16h) - Exam 16/05/25
- **Introduction to the renormalization group and critical phenomena:** Diego Trancanelli - FIM Unimore (05/2025, 9h)
- **Astrophysics:** Massimo Gaspari - FIM Unimore (Master of Physics course, 02/2025-05/2025, 48h)
- Collaboration for 1° year PhD- Research area: Theoretical and Computational Astrophysics Topic: Black Hole Weather- Prof. Massimo Gaspari a.y. 2024/25

PhD Workshops

- **7th Shaw-IAU Workshop on Astronomy for Education:** (18-21/11/2025)
- **The 3rd International Conference on Universe:** (04-06/03/2026)
- **1st International Conference on Education Sciences:** (15-17/06/2026)
- **FSL/PCTO Secondary School Event:** "Face to face with science: The invisible universe" – FIM Unimore (03/02/2026)
- **Outreach Event "Astro-AI":** "Scales and Structures of the Universe" – FIM Unimore (25/02/2026)
- **Research night:** Modena (27/09/2026)
- **Publish or Perish:** bibliometrics and research assessment - Unimore (11/2024, 4h)
- **Tera24: toward exascale-ready Astrophysics** (25-27/11/2024, 20h) - JSC Jülich Supercomputing Centre, Dr. Frank Wagner (Tutorials: AthenaPK, Pluto, Jupiter, Idefix, AI)
- **CIGS Unimore workshop** (08/11/2024, 4h) - Interdepartmental Centre for Grand Instruments, University of Modena and Reggio Emilia
- **Introduction to Supercomputing** (11-14/11/2024, 28h) - Jülich Supercomputing Centre (JSC)
- **Advanced parallel programming with MPI and OpenMP** (02-05/12/2024, 28h) - HLRS High Performance Computing Center Stuttgart
- **High performance computing and Quantum computing** (12-13/12/2024, 16h) - Cineca Leonardo Technopole, Bologna
- **Meerkat Fornax Survey: paths to galaxy quenching in small clusters** (28/11/2024) - Paolo Serra, INAF-OAC, University of Bologna, Department of Physics and Astronomy

Scientific courses

- **Modern Physics course (LS-EDU) (15CFU- FIS, 120 hours):**
University of Roma3, Rome
Certificate of frequency and test passed - a.y. 2023/2024
Content: Quantum Mechanics, Special Relativity, Elementary Particle physics, Condensed Matter physics, Astrophysics and Cosmology, Quantum Optics
- **Astronomy with an online telescope course:** Open University (UK)- 03/11/2023 - Certificate of frequency (24hours) and test passed

- **Contemporary physics course:** certificate of frequency (6 lessons-12 hours) - University of Modena (FIM) - a.y.2023/2024
- **Astronomy and Astrophysics course:** certificate of frequency (22 lessons- 44 hours) - **INAF** (TO) and University of Turin - 2026
- **Astronomy and Astrophysics course:** certificate of frequency (18 lessons- 36 hours) - **INAF** (TO) and University of Turin - 2025
- **Astronomy and Astrophysics course:** certificate of frequency (16 lessons- 32 hours) - **INAF** (TO) and University of Turin - 2024
- **Astronomy and Astrophysics course:** certificate of frequency (16 lessons-32 hours) - **INAF** (TO) and University of Turin - 2023
- **ComplExplore:** Seminars about Complex Systems applied to different fields - Nettuno University, Rome - 2021-2024
- **Evolving universe course:** Astrophysics, astronomy and cosmology course, Caltech University (coursera), frequency (10 modules- 40 hours) and test passed.

Education courses:

- **Philosophy festival 2025:** Certificate of frequency (28 hours), Modena
- **Artificial Intelligence in Education course (Scuola Futura):** New AI guidelines 2025 for innovative teaching - Certificate (20 hours)
- **Digital Transition and Cybersecurity MOOC (Scuola Futura):** Skills for countering cyberbullying - Certificate (20 hours)
- **Cybersecurity Fundamentals course (Scuola Futura):** Basic digital security competencies - Certificate (20 hours)
- **Digital Leadership Tools MOOC (Scuola Futura):** Methods for school leadership - Certificate (20 hours)
- **School Orientation course (Indire - Scuola Futura):** Basic level for secondary school II°, IV edition - Certificate (30 hours)
- **Advanced School Orientation course (Indire - Scuola Futura):** For secondary school teachers - Certificate (30 hours)
- **Anti-Bullying e-learning course (Platform Elisa):** Prevention and contrast of cyberbullying for teachers - Certificate (5 hours)
- **Peer Education in School (Platform Elisa - Part 1):** Peer involvement against bullism - Certificate (5 hours)
- **Peer Education in School (Platform Elisa - Part 2):** Operational paths for bullying prevention - Certificate (5 hours)
- **State Exam 2026 Webinar (DeaScuola):** Focus on the oral interview and regulatory updates - 1 hour
- **Online Discrimination Webinar (DeaScuola):** Cyberbullying and digital accessibility issues - 1.5 hours
- **State Exam Commission Training 2026 (Scuola Futura):** First edition - Certificate (10 hours)
- **Astronomy and Astrophysics teacher training (SOFIA):** INAF and University of Turin - Certificate (44 hours) - 2026
- **AI in Physics and STEM Didactics (SOFIA):** Unimore course on classroom implementation - Certificate (6 hours)
- **Artificial intelligence at school course** - Certificate of frequency (10 hours)- Cattaneo-Deledda secondary school
- **Graphing calculator course CASIO:** application in Math, Physics and ICT at secondary school - certification 19/04/2023

Professional courses

- **Local Police** - course 2019/20 CFL cat.C1 Comune Castelfranco-Emilia 20/12/2019 voto esame:94/100
- **Mechanical designer** - course IFTS - IFOA (Autocad, Inventor)- 2014: research of mechanical products, mechanical design and projects (800h) 2013/2014
- **Product expert Mercedes-Benz** - course and certification, Mercedes-Benz Rome (intelligent drive,NTG5,vehicles equipment and models, safety devices,vehicle connectivity,driving technologies ,mechanical characteristics,engine performance,autonomous driving and test drive)
- **Honda automotive**: certificate and courses (Honda vehicles, post sales, warranty, vehicle diagnosis)

List of university exams

LM-32 Computer engineering

- Computer systems architectures 9 CFU grade:30 honors/30 ING-INF/05
- Network services and security 9CFU grade:30/30 ING-INF/05
- Big Data Platforms 9CFU grade: 30 honors/30 ING-INF/05
- Digital Innovation 9CFU grade:30/30 ING-INF/05
- Information Management Systems 9CFU grade:30 honors/30 ING-INF/05
- Software design 9CFU grade:25/30 ING-INF/05
- Machine Learning 6CFU grade:30 honors/30 ING-INF/05+06
- Introduction to Big Data 9CFU grade:30/30 ING-INF/05
- Methods and tools of cloud for big data 6CFU grade:25/30 ING-INF/05
- System programming 9CFU grade:30/30 ING-INF/05
- Juridical systems for Big Data 6CFU grade:27/30 IUS-20
- Elective course 12CFU grade:30/30

L-8 Computer engineering

- Calculus1 9 CFU grade:30/30 MAT/03+05
- Calculus2 9CFU grade:22/30 MAT/05
- Programming 9CFU grade:30/30 ING-INF/05
- Advanced mathematical methods 9CFU grade: 20/30 MAT/05+08
- Chemistry 9CFU grade:27/30 CHIM/07
- Algorithms and data structures 9CFU grade:30/30 ING-INF/05
- Technical English 3CFU L-LIN/12
- Physics 9CFU grade:30 honours/30 FIS/01
- Economics of engineering 6CFU grade:27/30 ING-IND/35
- Probability and statistics 6CFU grade:26/30 MAT/06
- Basic circuit theory 9CFU grade:27/30 ING-IND/31
- Electronics and electronic measurements 9CFU grade:30/30 ING-INF/01
- Databases 9CFU grade:30/30 ING-INF/05
- Software engineering 9CFU grade:27/30 ING-INF/05
- Operating Systems 9CFU grade:30 honours/30 ING-INF/05
- Computer architecture 9CFU grade:24/30 ING-INF/05
- Communication technologies 9CFU grade:18/30 ING-INF/01+03
- Computer networks 9CFU grade:30/30 ING-INF/05
- Control systems analysis and design 9CFU grade:29/30 ING-INF/04
- Elective course 12CFU grade:30/30

LM-47 Sport management

- Didactics and methodology of motor skills (10 CFU) M-EDF/01 - grade:26/30
- Business Administration (15CFU) SECS-P/07 -grade:22/30
- Information tools from sports (10 CFU)- INF/01- grade:21/30

- Teams sport management (10 CFU)- M-PSI/01- grade:27/30
- Administrative law for sport (15 CFU)- IUS/10- grade:27/30
- Methods and techniques for recreational sports (10 CFU - M-EDF/02- grade:27/30
- Sport enterprise management (15 CFU)- SECS-P/08 -27/30
- Medical Statistics (5 CFU) - MED/01- grade:27/30
- Spanish (3 CFU) - grade:23/30
- Workplace safety (10 CFU)- ING-IND/17 - grade:23/30

L-22 Sport science

- Sport enterprise management (6 CFU) - SECS-P/08 - grade: recognized
- Coaching methods and training (6 CFU)- M-EDF/02 - grade: recognized
- Sport sociology (6 CFU) - SPS/07 - grade: recognized
- English (3 CFU) - L-LIN/01 - grade: recognized
- Computer skills (3 CFU) - grade: recognized
- French (3 CFU) - L-LIN/04- grade: 27/30
- Job law (12 CFU) - IUS/07 - grade: recognized
- Theories, methodologies and didactics of motor control (10 CFU)- M-EDF/01 - grade:23/30
- Research, methods and technologies in the field of motor skills (6 CFU)- M-PED/03 - grade: 19/30
- Applied Hygiene (10 CFU) - MED/42 - 30/30
- Physiology of the human body function (9 CFU) - BIO/09 - grade:23/30
- Pedagogy of the human body and sports (6 CFU) - M-PED/01 - 30/30
- Occupational medicine (9 CFU) - MED/44- grade: 26/30
- Individual and team sports (10 CFU)-M-EDF/02 - grade:28/30
- Biomechanics of the human body (12 CFU) - ING-INF/06 -grade:28/30
- Nutrition (9 CFU) -MED/49-grade:22/30
- Human anatomy (10 CFU)- BIO/16-grade: 20/30
- Motor skills and functional rehabilitation (10 CFU)- M-EDF/01 -grade:27/30
- Motor skills evaluation (6 CFU)- M-PED/04- 22/30
- European union law (6 CFU)- IUS/14 -grade:28/30

Other exams

- Inclusive teaching (M-PED/03):14/02/2018 - 30/30 (6CFU)
- Technology of education and learning (M-PED/04): 14/02/2018 - 29/30 (6CFU)
- Anthropology (M-DEA/01): 15/03/2018 - 30/30 (6CFU)
- Psychology (M-PSI/01): 15/03/2018 - 30/30 (6CFU)

University of economics exams

- Public Law (6CFU) 18/30 - 18/01/2012
- Economics History (6CFU) - 24/30 - 25/01/2012
- ITC (3CFU) - 18/06/2012
- Introduction to microeconomy (9CFU) - 26/30 - 29/06/2012
- English (6 CFU) - 20/07/2012
- Economics and business managements (6CFU) - 22/30 - 27/07/2012
- Introduction to macroeconomy (9CFU) - 18/30 - 29/05/2013
- Financial Science (6CFU) - 24/30 - 06/06/2013
- Job Law (6 CFU)- 24/30- 17/06/2013