

PERSONAL
INFORMATIONS

Alessandro Bile

PROFESSIONAL EXPERIENCE

- 2024-2025** **Research fellowship** related to the research project “ONEPLAST: Optical Neuroplasticity to memorize and recognize information”, at the Department of Basic and Applied Sciences for Engineering of the University of Rome "Sapienza", with scientific director Prof. Eugenio Fazio.
- 2022-2024** **Research fellowship** related to the research project “Development of materials, metamaterials and polar metasurfaces for manipulating mid-infrared emission”, the Department of Basic and Applied Sciences for Engineering of the University of Rome "Sapienza", with scientific director Prof. Maria Cristina Larciprete.
- 2022-2023** **Research fellowship** related to the research project “Study pilot demonstration for the preparation and dissemination of forecast biophysical supports to the application of integrated and organic production”, at the Physics Department of the University of Torino, with scientific director Prof. Claudio Cassardo.
- 2024-2025** **Adjunct Professor of Physics 1 (FIS/01)** for the Civil Engineering course at the Faculty of Civil and Industrial Engineering, Sapienza University of Rome.
- 2022-2024** **Adjunct Professor of Fundamentals of mechanics – physics (FIS/07)** for the Medicine and Psychology - Medical and Surgical Sciences and Translational Medicine Orthopedic Techniques - Rome Azienda Ospedaliera Sant’Andrea, Sapienza University of Rome.
- 2023-2024** **Adjunct Professor of Medical Physics – physics (FIS/07)** for the Medicine and Psychology - Rome Azienda Ospedaliera Sant’Andrea, Sapienza University of Rome.
- 2022-2023** **Adjunct Professor** of Complementary Mathematics (MAT / 04) for Techniques of prevention in the environment and in the workplace (Bachelor’s Degree) (health profession of prevention technician in the environment and in the workplace), Sapienza University of Rome
- September 2022** **Physics and Mathematics Professor** at High School “Liceo Ginnasio Statale
- December 2022 **Visconti”.**

- January 2022 - April 2022 **Visiting Researcher** at the Optics laboratory of the Femto-ST University of Besançon (France).
- 2021-2022 **Adjunct Professor** of "**Elements of Mathematical Analysis**" for the course of Technical Professions for Construction and the territory at the Sapienza University of Rome.
- 01 September 2021 - 31 August 2022 **Research fellowship** related to the research project "**Intelligent optical systems for recognition and sanification of pathological micro- and nano-organisms**" at the Department of Basic and Applied Sciences for Engineering of the University of Rome "Sapienza", with scientific director Prof. Eugenio Fazio.
- 01 September 2019 - 31 August 2021 **Research fellowship** related to the research project "**Optical and optoelectronic systems for signal processing and monitoring of cultural heritage**" at the Department of Basic and Applied Sciences for Engineering of the University of Rome "Sapienza", with scientific director Prof. Eugenio Fazio. <https://www.collectioncare.eu/about-us/>
- 2019-2022 **PhD in Electromagnetism** on the research project "**Design, modeling and implementation of intelligent hardware structures in the domain of optics**" at the Department of Basic and Applied Sciences for Engineering at the University of Rome "Sapienza"
- 2021-2022 **Principal Investigator** on Education Research and Learning at the Digital Education Lab of Rome.
- 2019-2023 **Tutor** of Physics 1 (FIS/01) at the University of Rome "Sapienza"; **Tutor** of Mathematical Analysis (MAT/05) at the University of Rome "Sapienza"; Tutor for DSA SLD and disabled Students at Sapienza University of Rome.
- 2020-2021 **University mentor / tutor of Physics**, Mathematical Analysis, Computer Science and Programming at Camplus College Rome.
- 2019-2022 **Tutor** of Mathematical Analysis (MAT/05) at the University of Rome "Sapienza"
- 2019-2021 **Tutor** of Physics 1 (FIS/01) at the University of Rome "Sapienza"
- 2020-2021 **University mentor / tutor of Physics**, Mathematical Analysis, Computer Science and Programming at Camplus College Bologna.
- 2020-2022 **Mentor** at Digital Education Lab: <https://www.digitaleducationlab.it/perche-scuola-educazione-digitale/il-team/>
Founder and designer of the Coding and Music course.
- 2018 Participation in the "Opus" Concert as a **Film Artist** at the Roman Philharmonic Academy in Rome.
- 2018 Participation in the concert "Many Lands: One voice" as **Film Artist** at the Symphony space theater in New York
- 2017 Participation in the "Fuse" Concert as **Film Artist** at Di Menna Center in New York.

PAPER PUBLICATIONS AND CONFERENCES

Check personal web page: <https://alessandrobile.site.uniroma1.it/>

REVIEWER, PROGRAM COMMITTEE MEMBER

- 2024 **Guest Editor** for the Journal Symmetry (MDPI) in the framework of the special issue entitled “Symmetry/Asymmetry in Neuromorphic and Intelligent Photonics”.
- 2022 **Committee Member** for the following conferences:
- **Scientific Committee Member:** CMPmeet2022, Munich, Germany.
 - **Program Committee Member:** *International Conference on Neural Computing for Advanced Applications* (NCAA), Jian, China.
 - **Program Committee Member** and **Chairman:** International Conference on Smart Education, Health and ICT (SHI 2022), Cambridge, United Kingdom.
- 2021-2022 **Reviewer of scientific papers**, for the following journals:
- *Cognitive Neurodynamics*
 - *Technology, Knowledge and Learning*.
 - *Science & Education*
 - *Optics Letters*
 - *Applied Sciences*
 - *Photonics*
- 2021-2022 **Reviewer of scientific papers**, for the following conferences:
- *International Conference on Neural Computing for Advanced Applications* (NCAA 2022), Jian, China, <https://dl2link.com/ncaa2022/organization/programCommittee/>.
 - *Fuzzy Systems and Data Mining* (FSDM 2022), Xiamen City, China.
 - *International Conference on Machine Learning and Intelligent Systems* (MLIS2022), Seoul, Republic of Korea.

FUNDING, AWARDS AND ACKNOWLEDGMENTS

- 16 December 2022 **PI-principal investigator. Research Grant: avvio alla ricerca**, funding for young researchers. Project title: Realization of psychomemories using soliton neural networks based on the photorefractive plasticity of nonlinear crystals. **Reference:** AR2221814D17193B
- 18 November 2022 **I-investigator.** Sapienza University research projects. Project title: Study and implementation of a dense optical neural network capable of recognising recurring characteristics in data sets (images). **Reference:** RP12218166ECCD89
- 23 February 2022 **Alda Merini Prize:** awarded by the Nuova Accademia dei Bronzi for opera “Sospeso tra indefinito e rivelato”.
- 21 February 2022 **Awarded** by the **Communic-azione!contest** as the best communication strategy of scientific results, the 4th congress of AISAM - Italian Association of Atmospheric Sciences and Meteorology, University of Milano, Italy. <http://congresso.aisam.eu/comunic-azione-.html>
- 23 January 2021 **PI-Principal Investigator. Research Grant: avvio alla ricerca**, funding for young researchers.
Project title: *Study of complex photonic neural networks built through the use of soliton guides.*
Reference: AR12117A814F8BCA

- 18 November 2021 **Research grant** awarded by the French government (**BGF**) to conduct three months of research activities in France. <https://www.institutfrancais.it/italia/borse-del-governo-francese-0>
- 16 November 2020 **PI-Principal Investigator. Research Grant: avvio alla ricerca**, funding for young researchers.
Project title: *Photonic implementation of elementary units of artificial intelligence based on soliton guides.*
Funded by the "Sapienza" University of Rome.
Reference: AR120172B7152382

SUPERVISOR ACADEMIC THESIS

- January 2021 **Co-supervisor** of master's thesis in Electronic Engineering at the "Sapienza" University of Rome by candidate Federico Camponeschi Title of the work: "Hybrid plasmon-soliton nano-photonic interconnection".
- December 2020 **Co-supervisor** of the bachelor thesis in Computer Engineering at the "Sapienza" University of Rome of the candidate Romolo D'Amico. Title of the work: "Development of a machine-learning system using LSTM networks for the analysis and predictions of historical data series".
- October 2020 **Co-supervisor** of master's thesis in Nanotechnology Engineering at the "Sapienza" University of Rome of candidate Riccardo Pepino. Title of the work: "Study of a magnetic switch in circuits using surface plasmons-polaritons".
- January 2020 **Co-supervisor** of master's thesis in Electronic Engineering at the "Sapienza" University of Rome of candidate Francesca Moratti. Title of the work: "Study of a neural photonic circuit".

HIGHER EDUCATION AND TRAINING

- 2019-2022 **PhD in Electromagnetism** on the research project " **Design, modeling and implementation of intelligent hardware structures in the domain of optics** " at the Department of Basic and Applied Sciences for Engineering at the University of Rome "Sapienza"
- November 2021 - December 2023 **Master's Degree in Electronic Music** at the Conservatory of Rome Santa Cecilia.
- July 2019 **DataScience certification**, paid postgraduate training course Experis Academy, Bergamo.
- 24 January 2019 **Master's degree in General Theoretical Physics** at the Sapienza University of Rome, with 110/110 cum laude. Thesis title: "Objects detection and tracking". Supervisors Prof. Pia Astone and Prof. Sergio Frasca.
- 24 March 2018 **Bachelor's degree in Electronic Music** with 110/110 evaluation at the Conservatory of Rome Santa Cecilia, with an experimental thesis entitled: "Gravitational Music".
- 17 October 2017 **National Diploma** 1st level Instructor, Personal Trainer.
- 2004-2017 Piano student at the "Sylvestro Ganassi" music school.

2013-2016 **Bachelor's degree in Physics** with 110/110 assessment at the "Sapienza" University of Rome. Thesis title: "Neutron capture therapy with boron". Supervisor Prof. Riccardo Faccini.

2008-2013 **Classical high school diploma** with 100/100 evaluation at the Liceo Classico Terenzio Mamiani in Rome.

LANGUAGES Italian (mother tongue), English (excellent), French (good)

Programming Languages

- In-depth knowledge of C, Matlab, R, COMSOL and Octave, Python, Fortran.
- Good knowledge of Python, Processing, Max-Msp, PureData, Scratch
- Basic knowledge of PERL

