INFORMAZIONI PERSONALI

Alessandro Bile

[Tutti i campi del CV sono facoltativi. Rimuovere i campi vuoti.]

OCCUPAZIONE PER LA QUALE SI CONCORRE
POSIZIONE RICOPERTA
OCCUPAZIONE DESIDERATA
TITOLO DI STUDIO
OBIETTIVO PROFESSIONALE

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.

ESPERIENZA PROFESSIONALE

From 1-03-2023 to 29-02-2024

Research fellowship related to the research project “*Development of materials, metamaterials and polar metasurfaces for manipulating mid-infrared emission*”, at the Department of Basic and Applied Sciences for Engineering of the University of Rome "Sapienza", with scientific director Prof. Maria Cristina Larciprete.

From 1-11-2022 to 28-02-2023

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.

From 24-01-2022 to 24-04-2022

Research fellowship from BGF related to the experimental demonstration of “Solitonic X-Junction in Lithium Niobate On Insulator”.

From 25-09-2021 to 25-09-2022

Lecturer (***Professore a Contratto***) of Elements of Mathematical Analysis, Technical Professions for Construction and the Territory (Civil and Industrial Engineering).

From 01-09-2021 to 31-08-2022

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.

From 12-09-2022 to 31-10-2022

Physics and Mathematics Professor at “Liceo Ginnasio Statale Visconti”, High School in Rome.

From 01-09-2019 to 31-08-2021

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 /

From 25-09-2021 to 25-09-2022

ISTRUZIONE E FORMAZIONE

From 01-11-2021 to 31-10-2023	**Master's degree in Electronic Music (110/110 cum Laude)**. Thesis: "A study on the neural perception of rhythmic patterns.
From 01-11-2019 to 31-10-2022	**PhD in Electromagnetism.** Thesis:" Solitonic Neural Network: Development of an innovative photonic neural network based on solitonic plastic interconnections". Special **Mention Doctor Europaeus** awarded by Sapienza University of Rome.
From 01-11-2020 to 02-10-2021	Certification in Technological Translator, organized by the Mathematical Office for Innovation and Businesses of the CNR
From 01-05-2019 to 16-07-2019	Data Science Certification
From 01-05-2019 to 16-07-2019	24 CFU Teaching Certification (Sapienza)
From 25-09-2016 to 25-09-2018	**Master's degree in Physics (110/110 cum Laude)**. Thesis: "Objects detection and tracking".
From 25-09-2014 to 25-09-2017	**Bachelor's degree in Electronic Music (110/110).** Thesis: "Gravitational Music".
From 25-09-2013 to 25-09-2016	**Bachelor's degree in Physics (110/110).** Thesis: "BNCT: boron neutron capture therapy".
From 25-09-2009 to 03-07-2013	**Maturità Classica – Classical Bachelor Licence (100/100)**

COMPETENZE PERSONALI

[Rimuovere i campi non compilati.]

Lingua madre: Italiano

Altre lingue

	COMPRENSIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	C2	C2	C2	C2	C2
Francese	C1	C1	C1	B2	B1

Livelli: A1/A2: Utente base - B1/B2: Utente intermedio - C1/C2: Utente avanzato
Quadro Comune Europeo di Riferimento delle Lingue

Patente di guida: A, B

ULTERIORI INFORMAZIONI

Pubblicazioni

Books and Monographs

1) **A. Bile,** Reti Neurali Solitoniche: Un Innovativo Network Neurale Fotonico Basato su Interconnessioni Solitoniche, Springer (2024). ISBN-10: 3031613406, ISBN-13: 978-3031613401. https://doi.org/10.1007/978-3-031-61341-8

   Chapter 1 DOI: https://doi.org/10.1007/978-3-031-61341-8_1

Chapter 2 DOI: https://doi.org/10.1007/978-3-031-61341-8_2
Chapter 3 DOI: https://doi.org/10.1007/978-3-031-61341-8_3
Chapter 4 DOI: https://doi.org/10.1007/978-3-031-61341-8_4
Chapter 5 DOI: https://doi.org/10.1007/978-3-031-61341-8_5

2) **A. Bile**, Solitonic Neural Networks: An Innovative Photonic Neural Network Based on Solitonic Interconnections. In (Ed.), AI in Materials – Springer (2023). ISBN-10: 3031486544. ISBN-13: 978-3031486548. https://doi.org/10.1007/978-3-031-48655-5

Chapter 1 DOI: https://doi.org/10.1007/978-3-031-48655-5_1
Chapter 2 DOI: https://doi.org/10.1007/978-3-031-48655-5_2
Chapter 3 DOI: https://doi.org/10.1007/978-3-031-48655-5_3
Chapter 4 DOI: https://doi.org/10.1007/978-3-031-48655-5_4
Chapter 5 DOI: https://doi.org/10.1007/978-3-031-48655-5_5

Book Chapters

1) **A. Bile** (2024). Overview of Neuromorphic Optical Systems. In: Solitonic Neural Networks. Machine Intelligence for Materials Science. Springer, Cham. https://doi.org/10.1007/978-3-031-48655-5_2
2) **A. Bile** (2024). Towards Neuro-Learning Process: Pyschomemories. In: Solitonic Neural Networks. Machine Intelligence for Materials Science. Springer, Cham. https://doi.org/10.1007/978-3-031-48655-5_3
3) **A. Bile** (2024). Introduction to Neural Networks: Biological Neural Network. In: Solitonic Neural Networks. Machine Intelligence for Materials Science. Springer, Cham. https://doi.org/10.1007/978-3-031-48655-5_1
4) **A. Bile** (2024). Solitonic Neural Network Acting as an Episodic Memory. In: Solitonic Neural Networks. Machine Intelligence for Materials Science. Springer, Cham. https://doi.org/10.1007/978-3-031-48655-5_5
5) **A. Bile** (2024). The Solitonic X-Junction as a Photonic Neuron. In: Solitonic Neural Networks. Machine Intelligence for Materials Science. Springer, Cham. https://doi.org/10.1007/978-3-031-48655-5_4
6) E. Fazio, **A. Bile**, H. Tari (2022). Optical Soliton Neural Networks. In (Ed.), Artificial Neural Networks – Recent Advances, New Perspectives and Applications. IntechOpen. https://doi.org/10.5772/intechopen.107927.

Published Papers

1) **A. Bile**, D. Ceneda, S.M. Vaghefi Esfidani, D. Sciré, M. Mosca, D. P. Adorno, R. Macaluso, R. Li Voti, C. Sibilia, T. G. Folland, M. Centini, M.C. Larcirpete, *Room-Temperature of Mid-Infrared Optical Phonons and Plasmons in W-doped VO2 thin films*, Optical Materials, 2024, 115732, https://doi.org/10.1016/j.optmat.2024.115732. Number of Citations: 0 Journal Impact Factor: 3.754
2) **A. Bile**, H. Tari, R. Pepino, A. Nabizada, E. Fazio, *Photorefraction Simulates Well the Plasticity of Neural Synaptic Connections*. Biomimetics 2024, 9, 231.

https://doi.org/10.3390/ biomimetics9040231. Number of Citations: 0 Journal Impact Factor: 4.5

3) **A. Bile**, R. Santoboni, S. Frasca, P. Astone, Gravitational Music: a mathematical-model for the popularization of gravitational waves, Physics Education 2024, 59, 6, https://doi.org/10.1088/1361-6552/ad7347. Journal Impact Factor: 1.5

4) A. Nabizada, H. Tari, **A. Bile**, E. Fazio, Novel high-efficient buried gratings for selective coupling of SPP waves onto single interfaces, Nanomaterials 2024, 14, 878. https://doi.org/10.3390/nano14100878. Number of Citations: 0 Journal Impact Factor: 4.7

5) **A. Bile**, M. Centini, D. Ceneda, A. Passaseo, V. Tasco, C. Sibilia and M.C. Larcirpete, Tuning the Berreman mod of GaN/AlxGa1-xN heterostructures on sapphire: the role of the 2D-electron gas in the mid-infrared, Optical Materials, 147, 2024, 114708, ISSN 0925-3467, https://doi.org/10.1016/j.optmat.2023.114708. Number of Citations: 0 Journal Impact Factor: 3.754

6) H. Tari, **A. Bile**, A. Nabizada and E. Fazio, Immobilization of Photorefractive Solitons by Charge Anchoring on Conductive Walls, Optics Letters, 48, 23, (2023), https://doi.org/10.1364/OL.506249. Number of Citations: 2 Journal Impact Factor: 3.56

7) **A. Bile**, M. Chauvet, H. Tari and E. Fazio *Supervised Learning of soliton X-junctions in Lithium Niobate films On Insulator*, Optics Letters 47, 21 (2022), https://doi.org/10.1364/OL.468997. Number of Citations: 13 Journal Impact Factor: 3.56

8) **A. Bile**, G. Bile, R. Pepino, H. Tari, *Innovative and non-invasive method for the diagnosis of dyschromatopsia and the re-education of the eyes*, Res. Biomed. Eng (2023). https://doi.org/10.1007/s42600-023-00263-1. Number of Citations: 1 Journal Impact Factor: 1.56

9) H. Tari, **A. Bile**, A. Nabizade, M. Iodice and E. Fazio, *Ultra-broadband interconnection between two SPP nanostrips by a photorefractive soliton waveguide*, Opt. Express 31, 26092-26103 (2023), https://doi.org/10.1364/OE.489886. Number of Citations: 8 Journal Impact Factor: 3.83

10) F. Frasca, E. Verticchio, A. Peiró-Vitoria, A. Grinde, **A. Bile**, C. Chimenti, C. Conati Barbaro, G. Favero, E. Fazio, F. Garcia-Diego, A.M. Siani, *Strategies for the use of microclimate sensors in spaces housing collections*, Heritage Science (2022), ***Herit Sci* 10**, 200 (2022). https://doi.org/10.1186/s40494-022-00831-1. Number of Citations: 4 Journal Impact Factor: 2.84

11) **A. Bile**, H. Tari, A. Grinde, F. Frasca, A.M Siani, E. Fazio, *Novel model based on artificial neural networks to predict short-term temperature evolution in museum enviroment*, Sensors 22, 615 (2022) https://doi.org/10.3390/s22020615. Number of Citations: 14 Journal Impact Factor: 3.85

12) **A. Bile**, H. Tari, E. Fazio, Episodic Memory and Information Recognition Using Solitonic Neural Networks Based on Photorefractive Plasticity. Appl. Sci. 2022, 12, 5585, https://doi.org/10.3390/app12115585. Number of Citations: 12 Journal Impact Factor: 2.7

13) H. Tari, **A. Bile**, F. Moratti, E. Fazio, Sigmoid *Neuromorphic activation function for Surface Plasmon Polariton integrated circuits*, Plasmonics (2022) https://doi.org/10.1007/s11468-021-01553-z. Number of Citations: 11 Journal Impact Factor: 2.73

14) B. Ianero, **A. Bile**, M. Alonzo, E. Fazio, *Stigmergic electronic gates and networks*, in press on J. Computational Electronics **20**, 2614–2621 (2021). Number of Citations: 13 Journal Impact Factor: 1.98

15) **A. Bile**, F. Moratti, H. Tari**,** E. Fazio, *Supervised and unsupervised learning using a fully-plastic all-optical unit of artificial intelligence based on solitonic waveguides*, Neural Comput. & Applic. (2021). https://doi.org/10.1007/s00521-021-06299-7. Number of Citations: 13 Journal Impact Factor: 5.1

16) **A. Bile**, Development of intellectual and scientific abilities through game- programming in Minecraft. Educ Inf Technol (2022). https://doi.org/10.1007/s10639-022-10894-z. Number of Citations: 25 Journal Impact Factor: 1.13

17) **A. Bile**, R. Pepino, E. Fazio, *Study of magnetic switch for surface plasmon-polariton circuits*, AIP Advances 11, 045222 (2021). Number of Citations: 9 Journal Impact Factor: 1.7

18) F. Camponeschi, **A. Bile**, H. Tari, E. Fazio, *Plasmonic-Solitonic coupling structure*, Int. J. Sci. Eng. Appl. Sci. 7 (3), 162-167 (2021). Number of Citations: 4 Journal Impact Factor: N/A

19) M. Reza Majidi, H. Tari, **A. Bile**, E. Fazio, *Development of sol-gel based carbon ceramic electrode modified by graphene oxide - polypyrrole nanocomposite for simultaneous determination of uric acid and dopamine in presence of ascorbic acid,* Int. J. Sci. Eng. Appl. Sci. 7 (3), 162-167 (2021). Number of Citations: 0 Journal Impact Factor: N/A

Conferences' Abstracts in Book of Abstracts

20) **A. Bile**, H. Tari, R. Pepino, A. Nabizada and E. Fazio, Solitonic Neural Network: A novel approach of photonic Artificial Intelligence based on photorefractive solitonic waveguides, EPJ Web Conf, Volume 287 (2023), EOS Annual Meeting (EOSAM 2023), https://doi.org/10.1051/epjconf/202328713003

21) **A. Bile,** M. Centini, D. Ceneda, A. Passaseo, D.M. Tobaldi, V. Tasco, C. Sibilia and M.C. Larcirpete, Tuning mid-infrared polarization sensitive reflectivity in GaN/AlGaN heterostructures, EPJ Web Conf, Volume 287 (2023), EOS Annual Meeting (EOSAM 2023), https://doi.org/10.1051/epjconf/202328714002

22) H. Tari, **A. Bile**, A. Nabizada, R. Pepino and E. Fazio, *Realization of tunable ultrabroadband interconnection for solitonic-plasmonic synapsis by exploiting epsilon near zero conducting oxides*, EPJ Web Conf, Volume 287 (2023), EOS Annual Meeting (EOSAM 2023), https://doi.org/10.1051/epjconf/202328713021

Accepted and Submitted Papers

- **A. Bile** et al., Room-Temperature Tuning of Mid-Infrared Optical Phonons and Plasmons in W-doped VO_2 thin films, under revision.
- **A. Bile**, M. Chauvet, H. Tari and E. Fazio, All-Optical erasing of photorefractive solitonic channels in Lithium Niobate thin films, submitted.
- **A. Bile**, G. Bile, G. Nicita, *Report Analysis of the transversal skills acquired though the game-programming Minecraft Education*, submitted.

Conferences in the period 2020-2024

Plenary Speeches

1) **A. Bile**, F. Frasca, A.M. Siani, E. Verticchio, E. Fazio, Prediction of the microclimate through NAR and NARX neural networks: application to Rosenborg Castle, museum partner of the CollectionCare project, CollectionCare Conference, Valencia, Spain. Plenary Speaker - December 2021.

Invited Speeches

1) **A. Bile**, H. Tari, E. Fazio, Development of an episodic neural network model using spatial solitons, CMPMEET2022 International meet on condensed matter physics, Munich (Germany). Invited Speaker – May 2022.

Regular speeches and poster

1. A. Speroni and **A. Bile**, The power of intermediality in the creation of artistic memory: the case of enigma 33 by Lucia Romualdi, CIM 2024, Turin (Italy), Regular Speech – October 2024.
2. **A. Bile**, D. Ceneda, M. Centini, F. V. Lupo, M. P. Casaletto, R. Macaluso, K. Aydin, M. C. Larciprete, *Thermo-optical Properties of MoO3 thin films in the mid-infrared and phonon frequency shift*, EOSAM 2024, Naples (Italy), Regular Speech - September 2024.
3. D. Ceneda, **A. Bile**, M. Vaghefi Esfidani, D. Sciré, M. Mosca, D. P. Adorno, R. Macaluso, R. Li Voti, C. Sibilia, T. G. Folland, K. Aydin, M. Centini, M. C. Larcirpete, *Room-Temeprature Tuning of Mid-Infrared Optical Phonons and Plasmons in W-doped VO2 thin films*, EOSAM 2024, Naples (Italy), Regular Speech – September 2024.
4. R. Macaluso, **A. Bile**, D. Ceneda, D. Sciré, G. Buscarino, M. Mosca, D. Persano Adorno, I. Crupi, M. Vaghefi Esfidani, R. Li Voti, C. Sibilia, T.G. Folland, K. Aydin, M. Centini and M.C. Larciprete, W-doped vanadium dioxide films by pulsed laser deposition for IR Photonics, SIE 2024 - LV Annual Meeting of the Italian Society of Electronics, Genova (Italy), Regular Speech – June 2024.
5. E. Fazio, **A. Bile**, H. Tari, A. Nabizada, R. Pepino, *All-optical machine learning within plasmonic and photonic structures using photorefractive plasticity,* The International Day of Light in Centro Ricerche Enrico Fermi, Rome (Italy), Regular Speech – May 2024.
6. M.Centini, **A. Bile**, M.C. Larciprete, D. Ceneda, A. Belardini, R. Li Voti, *Out of plane Second Harmonic Generation in MoS2 resonators on top of Si3N4 planar waveguides,* National Quantum Science and Technology Institute, Rome, 2024.
7. **A. Bile**, H. Tari, R. Pepino, A. Nabizada and E. Fazio, *Solitonic Neural Network: a novel approach of Photonic Artificial Intelligence based on photorefractive solitonic waveguides*, EOSAM 2023, Dijon (France), Regular Speech – September 2023.
8. **A. Bile**, M. Centini, D. Ceneda, A. Passaseo, D. M. Tobaldi, V. Tasco, C. Sibilia and M.C. Larciprete, *Tuning mid-infrared polarization sensitive reflectivity in GaN/AlGaN heterostructures,* EOSAM 2023, Dijon (France), Regular Speech – September 2023.
9. H. Tari, **A. Bile,** A. Nabizada, R. Pepino and E. Fazio, *Realization of tunable ultra-broadband interconnection for solitonic-plasmonic ysnapsis by exploiting near zero conductive oxides*, EOSAM 2023, Dijon (France), Poster – September 2023.
10. M. Centini, **A. Bile**, A. Belardini, D. Ceneda, A. Passaseo, D. M. Tobaldi, C. Sibilia and M.C. Larciprete, *Mid-infrared Berreman modes tuning in GaN/AlGaNvisible multilayer cavities on Sapphire for broadband nonlinear frequency conversion*, NOP 2023, Lecce, Poster – September 2023.
11. E. Fazio, **A.Bile**, H. Tari, Neural networking and machine learning based on photorefractive solitonic waveguides: novel all-plastic Photonic Artificial Intelligence, Photorefractive Photonics and Beyond 2022, Monastier di Treviso (Italy), Regular Speech – September 2022.

12. H. Tari, **A. Bile**, M. Iodice, E. Fazio, Photorefractive soliton synapsis for Surface-Plasmon-Polariton circuits, Photorefractive Photonics and Beyond 2022, Monastier di Treviso (Italy), Regular Speech – September 2022.
13. **A. Bile**, M. Chauvet, F. Bassignot, L. Gauthier-Manuel, H. Tari, E. Fazio, Addressable and erasable photonic neurons using solitonic X-Junctions in lithium niobite films, Photorefractive Photonics and Beyond 2022, Monastier di Treviso (Italy), Regular Speech – September 2022.
14. E. Fazio, **A. Bile**, H. Tari, Stigmergic reinforcement learning in photonic neural networks based on solitonic waveguides, AI and Machine Learning, Budapest (Hungary), Regular Speech – August 2022.
15. M. Chauvet, A. Perin, **A. Bile**, F. Bassignot, L. Gauthier-Manuel, E. Fazio, Films De LiNbO3: a plateforme pour fonctions optiques photo induites, OPTIQUE NICE 2022, Nice (France), Regular Speech – July 2022.
16. **A. Bile**, H. Tari, E. Fazio, Solitonic neuromorphic hardware for episodic pattern recognition and memorization, ICOP 2022, Trento (Italy), Regular Speech – June 2022.
17. **A. Bile**, H. Tari, E. Fazio, Solitonic neuromorphic hardware for pattern recognition and episodic memorization, Euro Optics 2022, Rome (Italy), Regular Speech - March 2022.
18. **A. Bile**, F. Frasca, E. Verticchio, E. Fazio, G. Favero, C. Chimenti ,, A. Grinde, A.M. Siani, Novel approach based on machine learning techniques to predict the microclimate variables inside museums, at the 4th congress of AISAM - Italian Association of Atmospheric Sciences and Meteorology, University of Milano, Italy. Regular Speech – February 2022.
19. F. Frasca, E. Verticchio, **A. Bile**, E. Fazio, G. Favero, C. Chimenti, A. Vulpiani, A. Grinde, A.M. Siani, Approaches to analyze the indoor climate in historical buildings, at the 4th congress of AISAM - Italian Association of Atmospheric Sciences and Meteorology, University of Milano, Italy. Regular Speech – February 2022.
20. **A. Bile**, G. Nicita, D. De Vito, Analysis of transversal skills acquired through game-learning, Fablearn Italy Conference 2021, INDIRE, Regular Speech – December 2021.
21. F. Frasca, E. Verticchio, **A. Bile**, E. Fazio, G. Favero, C. Chimenti, C. Conati Barbaro, A. Vulpiani, S. Lupi, A. Grinde, B. Escobar Soca, M. Zarzo, P. Merello, F.J. García-Diego, A.M. Siani, Changing track in procedures for deploying microclimate sensor devices in museum environments: application to CollectionCare museums, CollectionCare Conference, Valencia, Spain. Regular Speech – December 2021.
22. E. Fazio, **A. Bile**, H. Tari, Experimenting with optical plasticity in photonic machine learning – towards all-optical Artificial Intelligence, EOSAM 2021, Rome Italy, Regular Speech – September 2021.
23. F Frasca, E. Verticchio, **A. Bile**, E. Fazio, G. Favero, C. Chimenti, A. Vulpiani, A. Grinde, A.M. Siani, Definition of allowable targets from indoor climate observations in exhibition rooms: the case study of the Rosenborg Castle (Denmark) Analysis of the indoor climate trends in exhibition rooms: the case study of the Rosenborg Castle (Denmark), at the 3rd congress of AISAM - Italian Association of Atmospheric Sciences and Meteorology, University of L'Aquila, Italy, Poster - February 2021.
24. **A. Bile**, F. Moratti, E. Fazio, Photonic implementation of an elementary unit of artificial intelligence based on solitonic waveguides, Orale at ICOP2020 Italian Optics and Photonics Conference, University of Parma, Italy. Regular Speech – September 2020.
25. H. Tari, **A. Bile**, F. Moratti, E. Fazio, Implementation of neuromorphic activation function within Surface Plasmon Polariton circuits, at ICOP2020 Italian Optics and Photonics Conference, University of Parma, Italy. Regular Speech – September 2020.
26. H. Tari**, A. Bile**, F. Moratti, E. Fazio, Surface Plasmon Polariton neuromorphic circuit with sigmoid activation function, at 9th EPS- QEOD Europhoton, Czech Technical University, Prague, Czech Republic. Poster – September 2020.

International Scientific Collaborations

1. Prof. Eugenio Fazio, Sapienza Università di Roma (Italy).
2. Prof. Maria Cristina Larciprete, Sapienza Università di Roma (Italy).
3. Prof. Marco Centini, Sapienza Università di Roma (Italy).
4. Prof. Alessandro Belardini, Sapienza Università di Roma (Italy).
5. Prof. Concita Sibilia, Sapienza Università di Roma (Italy).
6. Prof. Mathieu Chauvet, Femto-St Institut Besançon (France).
7. Prof. Cheng Wang, Hong Kong University (China).
8. Prof. Koray Aydin, NorthWestern University (USA).
9. Prof. Thomas Folland, NorthWestern University (USA).
10. Prof. Dorotha Pawlak, ENSAMBLE3 (Poland).
11. Dott. Adriana Passaseo, CNR Lecce (Italy).
12. Dott. Mario Iodice, CNR Napoli (Italy).

Projects

Funding Information [grants as PI-principal investigator or I-investigator]

2024-2025 **PI-principal investigator**. Research Grant: start of research, funding for young researchers. Project title: All-optical implementation based on the extraction of characteristic patterns by hardware convolutional neural networks for the implementation of intelligent photonic devices. Funded by Sapienza University of Rome -- Budget 2000,00 €.
Reference: AR224190029D8129

2022-2023 **PI-principal investigator**. Research Grant: start of research, funding for young researchers. Project title: Realization of psychomemories using soliton neural networks based on the photorefractive plasticity of nonlinear crystals. Funded by Sapienza University of Rome -- Budget 2000,00 €.
Reference: AR2221814D17193B

2022-2023 **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) Study and implementation of a dense optical neural network capable of recognising recurring characteristics in data sets (images). Funded by Sapienza University of Rome – Budget 3000,00 €.
Reference: RP12218166ECCD89

2021-2022 **PI-principal investigator**. Research Grant: start of research, funding for young researchers. Project title: Study of complex photonic neural networks built through the use of soliton guides. Funded by Sapienza University of Rome -- Budget 1000,00 €.
Reference: AR12117A814F8BCA

2020-2021 **PI-principal investigator**. Research Grant: start of research, 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 – Budget 1000,00 €.
Reference: AR120172B7152382

ALLEGATI

Sostituire con la lista di documenti allegati al CV. Esempi:
- copie delle lauree e qualifiche conseguite
- attestazione del datore di lavoro

Dati personali

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

Il sottoscritto dichiara di essere consapevole che il presente *curriculum vitae* sarà pubblicato sul sito istituzionale dell'Ateneo, nella Sezione "Amministrazione trasparente", nelle modalità e per la durata prevista dal d.lgs. n. 33/2013, art. 15.

Data f.to

03-12-2023