

Giovanni Gibertoni

TENURE-TRACK RESEARCHER (RTT) | BIOMEDICAL ENGINEERING

[✉ giovanni.gibertoni@unimore.it](mailto:giovanni.gibertoni@unimore.it) | [gbrgmn](#) | [giovanni-gibertoni](#) | [UniFind](#) | [ResearchGate](#) | [ORCID](#)

Personal Information

- Full name: Giovanni Gibertoni
- Date of birth: 03 October 1994

Education

Ph.D. Information and Communication Technologies

UNIVERSITY OF MODENA AND REGGIO EMILIA (UNIMORE)

Modena, Italy

Nov 2019 - March 2023

- Electronics and Telecommunications - Instrumentation and Measurement
- Research Topic: "Optoelectronic Methods and Instrumentation for Human Vision Science"
- Advisor: [Prof. Luigi Rovati](#)

MS in Electronics Engineering

UNIVERSITY OF MODENA AND REGGIO EMILIA (UNIMORE)

Modena, Italy

2016 - 2018

- Thesis: "Optoelectronic device for Pupillary Light Reflex Analysis" at [OptoLAB](#)
- Advisor: [Prof. Luigi Rovati](#)
- Grade: 110/110 *Cum Laude*

BS in Electronics Engineering

UNIVERSITY OF MODENA AND REGGIO EMILIA (UNIMORE)

Modena, Italy

2013 - 2016

- Thesis: "Internet of Things: Smart Home wireless communication technologies"
- Advisor: [Prof. Maria Luisa Merani](#)

Expert In Electronics and Telecommunications

HIGH SCHOOL - TECHNICAL INSTITUTE "ENRICO FERMI"

Modena, Italy

2008 - 2013

Academic Experience

Tenure-Track Researcher (RTT)

DEPARTMENT OF BIOMEDICAL, METABOLIC AND NEURAL SCIENCES, [UNIMORE](#)

Modena, Italy

16 Oct. 2024 – present

- Research on biomedical optics, ophthalmic instrumentation, biosensors and AI-supported ocular imaging within [OptoLAB](#).

Postdoctoral Researcher

DEPARTMENT OF ENGINEERING "ENZO FERRARI", UNIVERSITY OF MODENA AND REGGIO EMILIA (UNIMORE)

Modena, Italy

16 Oct. 2023 – 15 Oct. 2024

- NIRS-based biosensors and human-machine interfaces for prosthetic control within Fit4MedRob.

Visiting PhD Researcher

[SUNY COLLEGE OF OPTOMETRY](#)

New York City, USA

Apr. 2022 – Oct. 2022

- Development and testing of ophthalmic instrumentation for pupillometry and electroretinography.

Professional Experience

R&D Firmware and Software Engineer, External Consultant

[GALILEO ENGINEERING S.R.L.](#)

Reggio Emilia, Italy

2019 – present

- Embedded firmware, CANopen systems and measurement software.

Scientific Consultant

[OCULOX TECHNOLOGY SA](#)

Lugano, Switzerland

(remote)

Feb. 2023 – Jun. 2023

- Calibration and testing of LED optical engines for ophthalmic stimulation.

Teaching

2025–27	Sensors (15631) , 4 ECTS / 32 contact hours, module of Medical Device Design, MSc in Bioengineering for Innovative Medicine, UNIMORE	Modena
2025–27	Optoelectronic Instrumentation and Sensors (EE-004R) , 9 ECTS / 72 contact hours, MSc in Electronic Engineering, UNIMORE	Modena
2025–27	Electronic Measurements (ELE-043) , 9 ECTS / 81 contact hours, BSc in Electronic Engineering, UNIMORE	Modena
2024–27	Biological Signals: Instruments and Measurement Methods (15808) , 4 ECTS / 32 contact hours, module of Biological Signals, MSc in Bioengineering for Innovative Medicine, UNIMORE	Modena
2024–25	Sensors and Measurement Systems for Bio-industries (EE-015) , 5 ECTS / 40 contact hours, MSc teaching, UNIMORE	Modena
2020–25	Instrumentation and Measurement Methods; Industrial Measurements , Laboratory teaching, MSc in Electronic Engineering, UNIMORE	Modena
2020–22	Networking Technologies and Protocols , Teaching-material support, BSc in Electronic Engineering, UNIMORE	Modena

Student Supervision and Mentoring

2024–25	Athanas Kafia , Master's Degree Thesis Co-Supervisor, UNIMORE — <i>Design and implementation of a Low-cost Wearable Eye Tracker</i>	Modena, Italy
2023–24	Raffaele Mondini , Bachelor's Degree Thesis Co-Supervisor, UNIMORE — <i>Guidelines and standards for solid-state light sources</i>	Modena, Italy
2021–2022	Manuel Botrugno , Master's Degree Thesis Co-Advisor, UNIMORE, Link	Modena, IT
2021	Valentina Di Pinto , Master's Degree Thesis Co-Advisor, UNIMORE, Link	Modena, IT
2020	Luca Esposito , Bachelor's Degree Thesis Co-Advisor, UNIMORE	Modena, IT
2019	Gianluca Bellocchi , Master's Degree Thesis Co-Advisor, UNIMORE, Link	Modena, IT

Patents

Automatic optical device for generating data useful for screening an iridocorneal-angle opening

Italy

GRANTED ITALIAN PATENT NO. 102024000015049

Granted 29 Jul. 2026

- Inventors: L. Quaranta, L. Rovati, D. Cassanelli, **G. Gibertoni**, F. Oddone.
- Holders: Fondazione G.B. Bietti (50%) and University of Modena and Reggio Emilia (50%). Filed 28 Jun. 2024.

Method for estimating a compliant position of an eye, ophthalmic examination device implementing the method, and related electronic kit

Italy

GRANTED ITALIAN PATENT NO. 102023000026841

Registered 30 Dec. 2025

- Inventors: **G. Gibertoni**, L. Rovati, G. Borghi.
- Holders: University of Modena and Reggio Emilia (60%) and University of Bologna (40%). Filed 15 Dec. 2023.

Presentations

*presenting author

- Jul. 2026 – **Gibertoni, G.***, Besozzi, A., Rovati, L. *A Charge-Integrated Modular NIR Armband for Forearm Optical Myography*. Oral presentation, IEEE EMBC 2026, Toronto, Canada, Session We.3.7, 29 Jul. 2026. [Original programme](#)
- Sep. 2025 – Di Pinto, V.*, **Gibertoni, G.**, Rovati, L. *Investigation of a High-Reflectance Coating for Wide-Spectrum Visual Stimulation*. Presentation at IMEKO PhotoMet 2025, Modena, Italy. [DOI](#)
- Jan 2025 – **Gibertoni, G.*** et al., *Enhancing Ophthalmic Examinations with Real-Time Eye Position Monitoring Using SVM*. Oral presentation at Photonic West, BIOS 2025, San Francisco, CA, US.
- March 2023 – **Gibertoni G.*** et al., *Optoelectronics Methods and Instrumentation for Human Vision Science*. PhD Dissertation, DDAY, Modena, Italy
- Jan 2022 – **Gibertoni, G.*** et al., *A simple Maxwellian optical system to investigate the photoreceptors contribution to pupillary light reflex*. Poster presentation at Photonic West, BIOS 2022, San Francisco, CA, US.
- March 2021 – **Gibertoni G.*** et al., *Towards the development of a new model for the oculomotor system*. Online Webinar Poster Presentation. SPIE BIOS, 2021. [Link](#)
- September 2019 – **Gibertoni G.*** et al., *Design and realization of a binocular pupillometer for RGB flicker annoyance estimation*. Presentation at XXXVI National Congress of Electrical and Electronic Measurements, [GMEE](#), Perugia, Italy

Awards, Fellowships, & Grants

2022	SPIE Travel Award , SPIE – The international society for Optics and Photonics	\$ 1,000
2019-2023	Ph.D. Scholarship , UNIMORE – University of Modena and Reggio Emilia	
2019	Young Research candidate to F.Cennamo award (Master Thesis) , GMEE	

INTERNATIONAL PROFESSIONAL MEMBERSHIPS

[SPIE](#) — the international society for optics and photonics.

[IEEE Engineering in Medicine and Biology Society \(EMBS\)](#).

[GNB](#) — Italian National Bioengineering Group.

[GMEE](#) — Italian National Group of Electrical and Electronic Measurements.

Funded Projects and Grant Applications

FUNDED PROJECTS

PRIN 2022 PNRR — TSN-MESMET

UNIMORE UNIT LEADER (FROM 13 OCT. 2025)

UNIMORE, Modena

2023 – present

- Measurement methods for hybrid wired/wireless Time Sensitive Networking. Project P2022JMKEN; CUP E53D23014650001. Total budget: EUR 298,605; UNIMORE unit: EUR 41,120.

Velux Stiftung project 1278 — Non-contact screening method for narrow ocular anterior chamber angle

RESEARCH TEAM MEMBER

UNIMORE / IRCCS Fondazione

Bietti

ongoing

- Development and clinical validation of optical instrumentation for anterior-chamber-angle screening. Total funding: EUR 307,000.

FAR 2025 — Design and Development of a Binocular Visual Stimulator for Objective Assessment of Pupillary Light Reflex

PRINCIPAL INVESTIGATOR

UNIMORE, Modena

Jul. 2025 – Jul. 2026

- Departmental research fund; budget: EUR 6,024.67.

Fit4MedRob — Fit for Medical Robotics

POSTDOCTORAL RESEARCHER

UNIMORE

2023 – 2024

- PNC project PNC0000007, CUP B53C22006810001; NIRS-based biosensors for prosthetic control. Programme budget: EUR 128,105,170.

APPLICATIONS SUBMITTED AND IN PREPARATION

MYRALIGHT — Quantifying Daylight Exposure and Visual Environment for Myopia Risk Assessment in Children

CO-PRINCIPAL INVESTIGATOR

Velux Stiftung Daylight

Research Call

2026

- Submitted proposal; requested budget EUR 330,000 (CHF 300,000).

INTRA-CVS — Hybrid Intra-Corneal Vision System coupled with Biologic Corneal Wrap for Corneal Blindness

TEAM MEMBER, UNIMORE WP5

Horizon Europe EIC

Pathfinder Open 2026

2026

- Submitted proposal ID 101353013; contribution to the implanted optical/electronic vision system. Requested grant: EUR 3,998,414.78; UNIMORE share: EUR 704,374.75.

3D-RetiNAM — A next-generation human 3D bioprinted retina-on-chip

TECHNICAL CONTRIBUTOR, UNIMORE

Horizon Europe Health 2026

2026

- Proposal preparation; contribution to WP5 on integrated microfluidics, biosensors, OCT imaging and AI analytics.

PROMISE — PPressure Ocular Monitoring with Intracorneal SEnsor

PRINCIPAL INVESTIGATOR

PRIN 2026

2026

- Application in preparation; continuous intracorneal-pressure monitoring for personalised glaucoma management.

Publications

- [1] **Gibertoni, G.**, Goldoni, D., Fort, A., Panzardi, E., Mugnaini, M., Rovati, L. (2026). *Photoacoustic Gas Detection: Optical Excitation Tailored to Acoustic Mode Structure of the Resonant Cell*. IEEE Transactions on Instrumentation and Measurement, 1–9. [DOI](#)
- [2] Besozzi, A., **Gibertoni, G.**, Rovati, L., Gibaldi, A. (2026). *Flexible calibration method: Photometric and radiometric measurements with compact low-cost multi-channel sensors*. Acta IMEKO, 15(2), 1–12. [DOI](#)
- [3] **Gibertoni, G.**, Rovati, L. (2026). *Characterization of high-reflectance diffuse coatings for 3D-printed optics*. Acta IMEKO, 15(2), 1–10. [DOI](#)
- [4] **Gibertoni, G.**, Rovati, L. (2025). *Enhancing ophthalmic examinations with real-time eye position monitoring using SVM*. Proceedings of SPIE, Ophthalmic Technologies XXXV, 13300. [DOI](#)
- [5] **Gibertoni, G.**, Hromov, A., Piffaretti, F., Geiser, M. H. (2025). *Assessing the retina with pupillometry and silent substitution*. Acta Ophthalmologica, 103(S284). [DOI](#)
- [6] Gallerani, A., Muzzarelli, M., **Gibertoni, G.**, Ferrari, A., Cattini, S., Rovati, L. (2025). *An Enhanced Measuring Instrument for In-Line and Real-Time Blood-pCO₂ Monitoring Using a Custom-Developed Gas-Exchange Filter*. Proceedings of SPIE, 13310, 1331004. [DOI](#)
- [7] Besozzi, A., **Gibertoni, G.**, Rovati, L., Gibaldi, A. (2025). *Development and Testing of a Lightweight, All-Day Glasses-Mounted Wearable: Investigating the Visual Environment in Children for Myopia Risk Assessment*. IMEKO PhotoMet 2025. [Original programme](#)
- [8] Di Pinto, V., **Gibertoni, G.**, Rovati, L. (2025). *Investigation of a High-Reflectance Coating for Wide-Spectrum Visual Stimulation*. IMEKO TC2 Modern Photonic Metrology. [DOI](#)
- [9] Muzzarelli, M., **Gibertoni, G.**, Goldoni, D., Marzdar, A., Panzardi, E., Grassi, M., Malcovati, P., Mugnaini, M., Rovati, L. (2025). *Design Optimization of a Photoacoustic System for Gas Detection in Exhaled Breath*. IMEKO TC2 Modern Photonic Metrology. [DOI](#)
- [10] Di Pinto, V., Galli, G., **Gibertoni, G.**, Ferrari, A., Ferrarini, M., Morisi, N., Rovati, L. (2025). *Towards the monitoring of dialysis treatment through absorption and endogenous fluorescence techniques*. Measurement: Sensors. [DOI](#)
- [11] **Gibertoni, G.**, Hromov, A., Piffaretti, F., Geiser, M. H. (2024). *Development of an Innovative Pupillometer Able to Selectively Stimulate the Eye's Fundus Photoreceptor Cells*. Diagnostics, 14(17), 1940. [DOI](#)
- [12] **Gibertoni, G.**, Borghi, G., Rovati, L. (2024). *Compact High-Resolution Multi-wavelength LED Light Source for Eye Stimulation*. Electronics, 13(6), 1127. [DOI](#)
- [13] Cassanelli, D., **Gibertoni, G.**, Ferrazza, M., Tramarin, F., Tanga, L., Quaranta, L., Oddone, F., Rovati, L. (2023). *Image analysis algorithm for the Anterior Chamber Angle Closure estimation and Van Herick classification*. IEEE IWASI, 267–272. [DOI](#)
- [14] **Gibertoni, G.**, Pothiadia Irungovel, A. B., Viswanathan, S., Rovati, L. (2023). *Silent stimulation of Cones: a comparison between the ERG and PLR responses*. Proceedings of SPIE, 12360, 123600T. [DOI](#)
- [15] **Gibertoni, G.**, Borghi, G., Rovati, L. (2023). *Vision-Based Eye Image Classification for Ophthalmic Measurement Systems*. Sensors, 23(1), 386. [DOI](#)
- [16] Fedullo, T., Cassanelli, D., **Gibertoni, G.** (2022). *Assessment of a Vision-Based Technique for an Automatic Van Herick Measurement System*. IEEE Transactions on Instrumentation and Measurement, 71, 1–11. [DOI](#)
- [17] Fedullo, T., Masetti, E., **Gibertoni, G.**, Tramarin, F., Rovati, L. (2022). *On the Use of an Hyperspectral Imaging Vision Based Measurement System and Machine Learning for Iris Pigmentation Grading*. IEEE I2MTC. [DOI](#)
- [18] **Gibertoni, G.**, Lenzini, N., Ferrari, L., Rovati, L. (2022). *Design and Performance of a Near-Infrared Spectroscopy Measurement System for In-Field Alfalfa Moisture Measurement*. Photonics, 9(3), 178. [DOI](#)
- [19] Cassanelli, D., Fedullo, T., **Gibertoni, G.**, et al. (2022). *Training of an artificial intelligence algorithm for automatic detection of the Van Herick grade*. Proceedings of SPIE, 11941, 35–41. [DOI](#)
- [20] **Gibertoni, G.**, Di Pinto, V., Cattini, S., Tramarin, F., Geiser, M., Rovati, L. (2022). *A simple Maxwellian optical system to investigate the photoreceptors contribution to pupillary light reflex*. Proceedings of SPIE, 11941, 52–60. [DOI](#)
- [21] Fedullo, T., Cassanelli, D., **Gibertoni, G.**, et al. (2021). *A Machine Learning Approach for a Vision-Based Van-Herick Measurement System*. IEEE I2MTC. [DOI](#)
- [22] Cassanelli, D., **Gibertoni, G.**, Cattini, S., et al. (2021). *A new screening system for the estimation of ocular anterior chamber angle width*. Proceedings of SPIE, 11623, 101–105. [DOI](#)
- [23] **Gibertoni, G.**, Cattini, S., Rovati, L. (2021). *Towards the development of a new model for the oculomotor system*. Proceedings of SPIE, 11623, 93–100. [DOI](#)

RESEARCH DATA

Gibertoni, G., Borghi, G., Rovati, L. (2026). *PopEYE – Infrared Ocular Image Dataset for Eye State and Gaze-Direction Classification*. Zenodo. [DOI](#)

I hereby declare that the information in this curriculum vitae is true and accurate, in accordance with applicable laws.

Modena,
4 agosto 2026

Signed,
Giovanni Gibertoni