



# LUCA TONIN

## CURRICULUM VITAE

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### EDUCATION

- 2013 Ph.D. in Manufacturing Systems and Robotics  
School of Engineering, École Polytechnique Fédérale de Lausanne, Switzerland  
Supervisor: Prof. José del R. Millán
- 2008 Master in Electronic Engineering  
Department of Information Engineering, University of Padua, Italy

### CURRENT POSITIONS

- 2024-present **Associate Professor**  
Department of Information Engineering, University of Padua, Italy

### PREVIOUS POSITIONS

- 2022-2024 **Assistant Professor (tenure-track)**  
Department of Information Engineering, University of Padua, Italy
- 2019-2022 **Assistant Professor**  
Department of Information Engineering, University of Padua, Italy
- 2016-2019 **Senior postdoctoral researcher**  
Center for Neuroprosthetics, École Polytechnique Fédérale de Lausanne, Switzerland
- 2013-2016 **Postdoctoral researcher**  
Department of Information Engineering, University of Padua, Italy

### COORDINATION OF RESEARCH PROJECTS

- 2023-present **Principal Investigator** of the project "EasyWalk", PRIN PNRR 2022, P2022XJ7TE, funded by Ministero dell'Università e della Ricerca, 2-year project. Amount: 239.976 €
- 2023-present **Co-principal Investigator** of the project "VR-BCI4PM", PRIN 2022, 2022BCZ52A, funded by Ministero dell'Università e della Ricerca, 2-year project. Amount: 211.351 €
- 2020-present **Principal Investigator** of the project "Brain-machine interfaces 2.0: A threefold symbiotic learning entity", funded by the Department of Information Engineering, University of Padua, Italy. Amount: 47'997 EUR
- 2018-2019 **Principal Investigator** of the project "Naturally driving brain-actuated neuroprostheses: A novel control framework", funded by The Hasler Foundation, Hirschengraben 6, CH-3011, Bern, Switzerland. Amount: 45'857.60 CHF
- 2018-present **Responsible of clinical** study at the Berufsgenossenschaftliches Universitätsklinikum Bergmannsheil gGmbH, Bürkle de la Camp-Platz 1, 44789, Bochum, Germany
- 2019-present **Leader** of the WHI team at the Cybathlon 2019 BCI Series, Cybathlon 2020 Global Edition, Cybathlon 2024 Challenges, Cybathlon 2024
- 2016 **Co-leader** of the BrainTweakers team at the Cybathlon 2016 event (Zurich, Switzerland)

### EDITORIAL ACTIVITIES (main)

- 2022-2024 **Associate Editor** of Scientific Reports, Nature
- 2019-present **Guest Associate Editor** of the Special Issue "Advances in the Integration of Brain-Machine Interfaces and Robotic Devices" in the journals Frontiers of Computational Intelligence and Frontiers in Neuroprosthetics
- 2019-present **Review Editor** for the journal Frontiers in Neurorobotics
- 2018-present **Review Editor** for the journal Frontiers in Human Neuroscience
- 2017-present **Program member** of the Graz Brain-Computer Interface Conference, Graz, Austria

### AWARDS

- 2024 **Silver medal and bronze medal** at the Cybathlon 2024, with the WHI and WHI Students teams
- 2024 **Silver medal** at the Cybathlon 2024 Challenges, with the WHI team

- 2023 **Best Young Researcher Paper** at IEEE MetroXRaine 2023, Milan, Italy
- 2020 **Gold medal at the Cybathlon 2020 Global Event**, with the WHI team
- 2019 **Gold medal at the Cybathlon BCI Series 2019 in Graz**, with the WHI team
- 2019 **Nomination for the Research Impact Awards 2019**, University of Essex, United Kingdom
- 2018 **Nomination for the g.Tec BCI Award 2018**, "Successful mutual learning with two tetraplegic users: The Cybathlon BCI race experience"
- 2016 **Gold medal at the Cybathlon 2016**, with BrainTweakers team from the École Polytechnique Fédérale de Lausanne, Switzerland
- 2013 **Winner of the Start Cup Veneto**, with EXiMotion s.r.l., Padua, Italy
- 2013 **Nomination for EPFL PhD Thesis Prize**, École Polytechnique Fédérale de Lausanne, Switzerland
- 2010 **Nomination for the Best Paper Award**, "The role of shared control in BCI-based telepresence", IEEE SMC Conference, Istanbul, Turkey
- 2009 **Andrea Scuri Prize for the best AT project**, Andrea Scuri Foundation, Padua, Italy
- 2009 **Best Master Thesis Prize**, University of Padua, Italy

## TEACHING ACTIVITIES

- 2024-present **Master course**, "Neurorobotics", University of Padua, Italy
- 2021-present **Bachelor course**, "Laboratorio di Programmazione", University of Padua, Italy
- 2020-present **Master course**, "Neurorobotics and Neurorehabilitation", University of Padua, Italy
- 2020-present **Bachelor course**, "Architettura degli Elaboratori"
- 2015-2019 **Doctoral course**, "Brain-Computer Interface for Neurorobotics", University of Padua, Italy
- 2013-2019 **Lecturer** in the several classes on the Brain-Computer Interface topic (in Italy and Switzerland)

## SUPERVISOR RESEARCH THESES

- 2023-present **Supervisor** of 6 Ph.D. students, Department of Information Engineering, University of Padua
- 2021-present **Co-supervisor** of 1 Ph.D. student, Scuola Superiore Sant'Anna di Pisa
- 2019-2020 **Co-supervisor** of 2 Ph.D. students, Department of Information Engineering, University of Padua
- 2018-2019 **Co-supervisor** of 1 Ph.D. student, RUR University Bochum, Germany
- 2015-present **Supervisor and co-supervisor** of more than 40 master and bachelor students, Department of Information Engineering, University of Padua

## ORGANISATION OF SCIENTIFIC MEETINGS (main)

- 2025 **Organiser and treasurer** of the ECOMR 2025 International conference, Padua, Italy
- 2023 **Chair** at the BCI Conference 2023, Workshop "BCI applications for active living", Brussels, Belgium
- 2020 **Chair** at the 2020 IEEE SMC Conference, Special Session "Bridging the gap between BCI and robotics: ROS-Neuro and new integration solutions", Toronto, Canada (virtual)
- 2019 **Chair** at the 2019 IEEE SMC Conference, Special Session "BMIs enabled by shared-control: principles and applications", Bari, Italy
- 2014 **Chair** at the International IAS Conference, Brain-Computer Interface Workshop, Padua, Italy
- 2010 **Chair** at the IEEE SIMPAR Conference, Brain-Computer Interface Workshop, Darmstadt, Germany

## INSTITUTIONAL RESPONSIBILITIES (main)

- 2021-present **Doctoral school member**, Information Engineering, University of Padua, Italy
- 2020-present **Member** of the "Inclusione e disabilità" committee, Department of Information Engineering, University of Padua, Italy
- 2019-present **Faculty member**, University of Padua, Italy
- 2016 **External project reviewer**, University of Padua, Italy

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2022-present **Senior Member** of IEEE
- 2020-present **Member** of the IEEE Technical committee on Neuro-Robotics systems
- 2018-present **Member** of the IEEE Robotics and Automation Society
- 2018-present **Member** of the IEEE Systems, Man, and Cybernetics Society
- 2015-present **Member** of the Brain Computer Interface Society, Utrecht, The Netherlands

## INVITED SPEAKER (main)

- 2022 **Invited speaker** at the g.Tec BCI Master Class event
- 2021 **Invited speaker** at the 2021 International IEEE/EMBS Conference on Neural Engineering (NER),

- Virtual Conference
- 2020 **Invited speaker** at the SoftAct webinar
- 2020 **Invited speaker** at the 2020 International Conference on Robotics and Automation (ICRA), Paris, France
- 2019 **Invited speaker** in the discussion panel at the IEEE 2019 SMC Conference (Bari, Italy)
- 2015 **Invited keynote speaker** at the "IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Workshop on Embodied-Brain Systems Sciences", Hamburg, Germany

## MAIN PUBLICATIONS

- Ceradini et al. The Effect of User Learning for Online EEG Decoding of Upper-Limb Movement Intention, IEEE Transactions on Medical Robotics and Bionics, 2025
- Cimarosto et al. Decoding EEG Signals during the Observation of Robotic Arm Movements, IEEE Access, 12:195731-44, 2024
- Trombin et al. Environment-Adaptive Gait Planning for Obstacle Avoidance in Lower-Limb Robotic Exoskeletons, 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 13640-7, 2024
- Tortora et al. Effect of lower limb exoskeleton on the modulation of neural activity and gait classification, IEEE Transactions on Neural Systems and Rehabilitation Engineering, 31:2988-3003, 2023
- Tonin et al. Learning to control a BMI-driven wheelchair for people with severe tetraplegia, iScience, 25(12), 2022
- Tortora et al. Neural correlates of user learning during long-term BCI training for the Cybathlon competition. Journal of NeuroEngineering and Rehabilitation, 19(69), 2022
- Beraldo et al. Shared Intelligence for Robot Teleoperation via BMI, IEEE Transactions on Human-Machine Systems, 52(3):400-9, 2022
- Tonin et al. ROS-Neuro: An Open-Source Platform for Neurorobotics. Frontiers on Neurorobotics, 16:886050, 2022
- Tonin et al. Noninvasive Brain–Machine Interfaces for Robotic Devices, Annual Review of Control, Robotics, and Autonomous Systems 4:(1):191-214, 2021
- Tortora et al. Hybrid Human-Machine Interface for Gait Decoding Through Bayesian Fusion of EEG and EMG Classifiers. Frontiers on Neurorobotics, 14:582728, 2020
- Jeunet et al. Uncovering EEG Correlates of Covert Attention in Soccer Goalkeepers: Towards Innovative Sport Training Procedures. Scientific Reports, 10:1705, 2020
- Schneider et al. Real-time EEG Feedback on Alpha Power Lateralization Leads to Behavioral Improvements in a Covert Attention Task. Brain Topography, 33:48–59, 2020
- Tonin et al. The Role of the Control Framework for Continuous Teleoperation of a Brain–Machine Interface-Driven Mobile Robot, IEEE Transactions on Robotics, 36(1):78-91, 2020
- Perdakis et al. The Cybathlon BCI race: Successful longitudinal mutual learning with two tetraplegic users. PLOS Biology 16(5): e2003787, 2018
- Perdakis et al. Brain racers. IEEE Spectrum, 54(9):44-51, 2017
- Tonin et al. Behavioral and Cortical Effects during Attention Driven Brain-Computer Interface Operations in Spatial Neglect: A Feasibility Case Study. Frontiers in Human Neuroscience, 11:336, 2017
- Leeb et al. Towards Independence: A BCI Telepresence Robot for People With Severe Motor Disabilities. Proceedings of the IEEE, 103(6):969-82, 2015
- Leeb et al. Transferring brain–computer interfaces beyond the laboratory: Successful application control for motor-disabled users. Artificial Intelligence in Medicine, 59(2):121-32, 2013
- Tonin et al. An online EEG BCI based on covert visuospatial attention in absence of exogenous stimulation. Journal of Neural Engineering, 10(5):056007, 2013
- Tonin et al. Time-dependent approach for single trial classification of covert visuospatial attention. Journal of Neural Engineering, 9(4):045011, 2012