

LAURA MASARACCHIA, PhD

Postdoctoral Fellow in Computational and Systems Neuroscience

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CORE RESEARCH INTERESTS

Neuroscience
Machine Learning
Electrophysiology
Computational Models
AI Ethics
Philosophy of Mind
Complex Systems



CORE SKILLS

Computer Programming
Data Analysis
Software Development
Scientific Writing
Teaching
Popular Science Talks



LANGUAGES

Italian - native speaker
English - professional proficiency
Danish - advanced (C2)
Swedish - intermediate
Spanish - intermediate



ACADEMIC EXPERIENCE

Sept 2023 - ongoing

Postdoc at Center of Functionally Integrative Neuroscience (CFIN), Aarhus University (Denmark)

Computational and Systems Neuroscience

- Analysis of various brain data typology (LFP, calcium imaging, MEG, EEG, fMRI)
- Development of computational models to tackle cross-scale interactions in brain activity

Oct 2022 - ongoing

Lecturer at Sino-Danish Center for Education and Research (SDC), Beijing (China)

Neuroscience and Neuroimaging M.Sc. Program

- Computer Simulations of neural systems

Nov 2021 - Dec 2021

Visiting researcher at Oxford Centre for Human Brain Activity (OHBA), Oxford University (UK)

July 2020 - June 2023

Ph.D. Student at Center of Functionally Integrative Neuroscience (CFIN), Aarhus University (Denmark)

Computational and Systems Neuroscience

- Study and development of computational models for the analysis of brain data
- Data collection and data preprocessing
- Supervision of Bachelor's and Master's theses
- Teaching, public presentations and publication of scientific work

Awarded: 25 September 2023



INDUSTRIAL EXPERIENCE

Nov 2017 - Jan 2020

Machine Learning Engineer & Data analyst at Semcon AB, Gothenburg (Sweden)

- Computer vision for self-driving vehicles
- Data analysis for predictive maintenance
- Co-Supervision of Master's thesis: Ordinary Differential Equation Deep Neural Network applications
- Machine Learning consulting in business campaign "Add Perspective": <https://news.cision.com/semcon/r/new-concept-automatically-connects-car-and-trailer,c2677402>



BACKGROUND EDUCATION

- Jan 2017 -
Aug 2017 **M.Sc. Thesis Project in Computational Neuroscience** at **Werner Reichardt Centre for Integrative Neuroscience (CIN)**, Tuebingen (Germany)
Testing Efficient Coding hypothesis and noise effects in Convolutional Neural Networks performing visual tasks
- Sept 2014 -
Aug 2017 **M.Sc. Degree in Complex Adaptive Systems** at **Chalmers University of Technology**, Gothenburg (Sweden)
Major: Computational Biology, Computational Physics, Dynamical Systems
Extra courses: Quantum Physics, Cosmology, Astrophysics
Total ECTS: 150
- Sept 2010 -
July 2014 **B.Sc. Degree in Engineering Physics** at **Polytechnic University of Turin (Italy)**
Major: Theoretical Physics, Applied Electronics, Nanotechnologies
Total ECTS: 180, *Grade:* 101/110



SUMMER SCHOOLS

- June - July
2025 Admitted to **Complex Systems Summer School (CSSS)**: lectures and hands-on work on research projects within complexity science. *Santa Fe Institute for Complexity Science. Santa Fe, NM (USA)*
- July 2024 **Oxford Machine Learning (OxML) Summer School**: Seminars on the latest developments in machine learning. *Oxford Mathematical Institute. Oxford (UK)*
- July 2021 **Neuromatch Academy Summer School**: Online Summer School on Computational Neuroscience. *Neuromatch community (worldwide)*
- Aug 2017 **Dynamic Field Theory Summer School**: Lectures and hands-on projects on dynamic field theory. *Institute for Neuroinformatics, Ruhr-Universität Bochum (Germany)*



TALKS & PRESENTATIONS

- Oct 2024 **Public Talk**, L. Masaracchia and N. Y. Larsen. *AI: the tools, the benefits, the dangers*. Sino-Danish Center for Education, Beijing (China)
- April 2024 **Invited Talk**, L. Masaracchia. *How hippocampal network states affect neural population responses*. Centre for Cognitive Neuroscience, Aalborg (Denmark)
- May 2022 **Guest Lecture**, L. Masaracchia. *Temporal decoding of mental processes in electrophysiological data*. Advanced Electrophysiology course, M.Sc. in Neuroscience and Neuroimaging, Aarhus University, Aarhus (Denmark)



OTHER RELEVANT RESEARCH ACTIVITIES

- Poster Presentations: (Conferences)** OHBM 2022, OHBM 2023, MEG UKI 2023, 4th Nordic Neuroscience Meeting 2024, FENS 2024
- Article Peer-Reviews: (Journals)** *Human Brain Mapping, Network Neuroscience, NeuroImage, PLOS Computational Biology*
- PhD Course Organisation (and Teaching):** *Introduction to MATLAB*, Aarhus University, 2022