

Matteo Guardamagna, PhD

EMBO Postdoctoral Fellow at *Kavli Institute for Systems Neuroscience* (NTNU)
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Education

- 2018-2022: **PhD in Neuroscience**, Radboud University (Donders Institute), Nijmegen (NL).
Thesis: Temporal Coding Dynamics in the CA1 region of the hippocampus
Cum Laude Distinction
- 2015-2017: **MSc in Cognitive Neuroscience**, University of Padua, Padua (IT).
Thesis: Functional characterization of spatially-modulated neurons in the dorsal subiculum of the mouse.
Graduated cum laude (110/110 cum laude)
- 2012-2015: **BSc in Psychological Sciences**, University of Milano-Bicocca, Milan (IT).
Thesis: Cross-modal influences on face perception: psychophysiological study
Graduated **cum laude** (110/110 cum laude)

Research Positions

- 2023-present: **Postdoctoral Fellow**
Kavli Institute for Systems Neuroscience (NTNU), Trondheim (NO)
Supervisors: Prof. Edvard Moser and Prof. May-Britt Moser
- 2018-2022: **PhD Candidate** (Marie-Curie Early-Stage Researcher)
Donders Institute (Radboud University), Nijmegen (NL).
Supervisors: Prof. Francesco Battaglia and Dr. Federico Stella
- 2020-2021: **Visiting PhD Student** (5 Months)
Kavli Institute for Systems Neuroscience (NTNU), Trondheim (NO)
Supervisors: Prof. Clifford Kentros
- 2016-2017: **Visiting Research Student** (MSc Thesis)
University College London (UCL), London (UK)
Supervisors: Prof. Francesca Cacucci and Prof Tom Wills
- 2014-2015: **Undergraduate Research Student** (BSc Thesis)
University of Milano-Bicocca, Milan (IT).
Supervisors: Prof. Alice Mado Proverbio

Grants and Awards

- 2023-2025: **EMBO** Postdoctoral Fellowships (ALTF 738-2022- total 148000€)
- 2018-2021: **Marie Skłodowska-Curie** Fellowship for Early Stage Researchers (total 374000€)
- 2016-2017: **MIUR** Scholarship for Excellent Traineeships (total 500€)
- 2016-2017: **Erasmus+** Traineeship Scholarship (total 3000€)
- 2022 **Cum Laude Distinction** from the PhD in Science at Radboud University.
- 2017 Graduated **cum laude** (110/110 cum laude) from the M.Sc.
- 2015 Graduated **cum laude** (110/110 cum laude) from the BSc.

Publications

Modi, B., **Guardamagna, M.**, Stella, F., Griguoli, M., Cherubini, E., Battaglia, F. P. (2023). *State Dependent Coupling of Hippocampal Oscillations*. *eLife*, <https://doi.org/10.7554/eLife.80263>.

Guardamagna, M., Chadney, O., Stella, F., Zhang Q., Kentros C. & Battaglia, F. P. (2023). *Direct Entorhinal Control of CA1 Temporal Coding*. *bioRxiv*. <https://doi.org/10.1101/2023.05.27.542579>

Guardamagna, M., Stella, F., & Battaglia, F. P. (2023). *Heterogeneity of network and coding states in mouse CA1 place cells*. *Cell Reports*, 42(2), 112022. <https://doi.org/10.1016/j.celrep.2023.112022>

Guardamagna, M., Eichler, R., Pedrosa, R., Aarts, A., Meyer, A., & Battaglia, F. (2022). *The Hybrid Drive: A Chronic Implant Device Combining Tetrode Arrays with Silicon Probes for Layer-Resolved Ensemble Electrophysiology in Freely Moving Mice*. *J. Neural Eng.* 19 036030.

Proverbio, C. A. A. M., Nasi, V. L., Arcari, L. A., De Benedetto, F., **Guardamagna, M.**, Gazzola, M., & Zani, A. (2015). *The effect of background music on episodic memory and autonomic responses: Listening to emotionally touching music enhances facial memory capacity*. *Scientific Reports*, 5. <https://doi.org/10.1038/srep15219>.

Proverbio, A. M., Manfrin, L., Arcari, L. A., De Benedetto, F., Gazzola, M., **Guardamagna, M.**, ... Zani, A. (2015). *Non-expert listeners show decreased heart rate and increased blood pressure (fear bradycardia) in response to atonal music*. *Frontiers in Psychology*, 6(OCT). <https://doi.org/10.3389/fpsyg.2015.01646>

Invited Talks and Poster Presentations

11.12.2023 **Guardamagna, M.**, Development of Toroidal Topology in the Grid Cells Network.

Invited Talk: Memory Development in Mammalian Species. Nijmegen (NL).

30.5.2023 **Guardamagna, M.**, Direct Entorhinal Control of CA1 Temporal Coding.

Invited Talk: Spring Hippocampal Research Conference. Verona (IT).

14.4.2023 **Guardamagna, M.**, Heterogeneity of Network and coding states in mouse CA1 place cells.

Invited Talk: Journal Club, Wills-Cacucci – UCL. London (UK). (Virtual)

28.4.2021 **Guardamagna, M.**, Medium gamma control of CA1 place cells' phase precession.

Invited Talk: Journal Club – Physionet Team. Marseille (FR). (Virtual)

Posters:

- **SfN 2024: M.Guardamagna**, E. Hermanses, J.Carpenter. C.M. Lykken, B. Dunn, E. and MB Moser
Poster session: Development of Toroidal Topology in the Grid Cells Network, Washington (USA).
- **FENS 2024: M.Guardamagna**, E. Hermanses, J.Carpenter. C.M. Lykken, B. Dunn, E. and MB Moser
Poster session: Development of toroidal and ring manifold in the entorhinal networks, Vienna (Austria).
- **SfN 2023: M.Guardamagna**, E. Hermanses, J.Carpenter. C.M. Lykken, B. Dunn, E. and MB Moser
Poster session: Development of Toroidal Topology in the Grid Cells Network, Washington (USA).
- **FENS 2022: M.Guardamagna**, F.Stella, F.P.Battaglia.
Poster session: Distinct hippocampal network states support theta phase precession and theta sequences in CA1. **FENS**, Paris (FR).
- **SfN 2021: M.Guardamagna**, F.Stella, F.P.Battaglia.
Poster session: Time-varying gamma balance in CA1 distinguishes between differential spatial coding regimes. **SfN (Virtual)**.
- **Donders Session 2020: M. Guardamagna**, Pedrosa, R., Eichler, R., Aarts, A. Battaglia FP. (2019).
Poster session: The Hybrid Drive: combining high density tetrode recordings with silicon probes for layer specific ensemble physiology in the hippocampus. Nijmegen (NL).
- **Molecular Genetic Tools for the Study of Neural Circuits Summer School 2019: Guardamagna, M.**, Pedrosa, R., Eichler, R., Aarts, A. Battaglia FP. (2019). Poster session: The Hybrid Drive: combining high density tetrode recordings with silicon probes for layer specific ensemble physiology in the hippocampus. Tromsø (NO).

Mentoring and Teaching

2023-2025: Supervising PhD student Jordan Carpenter (Moser Lab)
2020: Supervising MSc student and MSc Thesis of George Bardanikas (Battaglia Lab)
2019: Supervising MSc student and MSc Thesis of Kyras Wilms (Battaglia Lab)

2023-2024: **Lecturer on** "Neural Dynamics" for the NEVR3003, Behavioral and Cognitive Neuroscience Course.

2020: **Teaching assistant** for Coding with Matlab (BSc Course).

2020: **Teaching assistant** for Cognitive Neuroimaging (MSc Course).

2019: **Teaching assistant** for Behavioral Neuroscience (BSc Course).