MATTEO SAPONATI

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Work experience

Sept 2019 - present	**Ph.D. Candidate** Ernst Strüngmann Institute (ESI) for Neuroscience, Frankfurt Am Main (DE) Max-Planck Institute for Brain Research, Frankfurt Am Main (DE)
Mar 2019 - Aug 2019	**Assistant Research Scientist** Institute des Neurosciences des Systemes Aix-Marseille University, Marseille (FR)
Jul 2018 - Sep 2018	**Research Intern** Barcelona Biomedical Research Park, Barcelona (ESP)

Education

May 2020 - present	**Ph.D. in Neurophysics** Donders Institute for Brain, Cognition and Behaviour, Radboud University (NL)
Sep 2016 - Oct 2018	**M.Sc. Degree in Physics** 110/110 - Department of Physics, University of Pisa (IT)
Sep 2011 - Jun 2016	**B.Sc. Degree in Physics** 75/110 - Department of Physics, University of Pisa (IT)

Research

Journal articles

Saponati, **M.**, & Vinck, M. (2023a). Inhibitory feedback enables predictive learning of multiple sequences in neural networks. *bioRxiv*.

Saponati, **M.**, & Vinck, M. (2023b). Sequence anticipation and spike-timing-dependent plasticity emerge from a predictive learning rule. *Nature Communications*, *14*(1), 4985.

Spyropoulos, G., **Saponati**, **M.**, Dowdall, J. R., Schölvinck, M. L., Bosman, C. A., Lima, B., Peter, A., Onorato, I., Klon-Lipok, J., Roese, R., et al. (2022). Spontaneous variability in gamma dynamics described by a damped harmonic oscillator driven by noise. *Nature Communications*, *13*(1), 1–18.

Saponati, **M.**, Garcia-Ojalvo, J., Cataldo, E., & Mazzoni, A. (2022). Thalamocortical spectral transmission relies on balanced input strengths. *Brain Topography*, *35*(1), 4–18.

Saponati, **M.**, Garcia-Ojalvo, J., Cataldo, E., & Mazzoni, A. (2019). Integrate-and-fire network model of activity propagation from thalamus to cortex. *Biosystems*, *183*, 103978.

Conference presentations and proceedings

2023 **Cosyne Conference (Montreal, CA)**
Poster: ”A predictive plasticity rule entails the anticipation of multiple spike sequences”

2022 **Society for Neuroscience Meeting (San Diego, USA)**
Poster: ”A predictive plasticity rule explains the anticipation of spike patterns at the single neuron level and the emergence of spike-timing-dependent plasticity mechanisms”

2022 **Bernstein Conference (Berlin, DE)**
Poster: ”V1 classical receptive field response is shaped by the spatio-temporal properties of the input”

2021 **Neuromatch Conference (online)**
Poster: ”Sequence anticipation and STDP emerge from a predictive learning rule”

2021 **SNUFA Workshop (online)**
Poster: ”Sequence anticipation and STDP emerge from a predictive learning rule”

2021 **Champalimaud Research Symposium (Lisbon, PT)**
Poster: ”Sequence anticipation and STDP emerge from a predictive learning rule”

Grants and awards

Sep 2019 - present **PhD Research Fellowship**
International Max Planck Research School (IMPRS) for Neural Circuits, MPI for Brain Research, Frankfurt am Main (DE)

Jul 2018 - Sep 2018 **Erasmus+ Grant**
Erasmus program (EU)

Teaching experience

Apr-May 2023 **Workshop Teacher**
Radboud University, Nijmegen (NL)

Jul 2022 **Teaching Assistant**
Neuromatch Academy, Deep Learning (online)

Sep 2021 **Scientific Workshop Teacher**
GRADE Brain, Goethe University Frankfurt am Main (DE)

Nov 2017 - Mar 2018 **Teaching Assistant**
Department of Physics, University of Pisa (IT)

Skills

Language Skills Italian (Mother tongue), English (Fluent), Portuguese (Conversational)
Coding Skills Python, Pytorch, C++, Matlab, LaTex, Adobe Illustrator, Music production DAWs
Research Skills Mathematical Modelling, Data Analysis, Statistical Analysis, Public Speaking

Miscellaneous

Music experience I play guitar and drums. I have years’ experience in playing music with bands, composing and playing original tracks. I love to participate to music jam sessions. I have experience in producing original music.

Sound tech experience I have experience in working as a sound technician in pubs. I organized live music events.

Scientific seminars I have co-organized scientific seminars and talks.