

FLAVIO MARTINELLI

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🎓 Scholar | **in** LinkedIn | **🐦** @FlaviohMar

EDUCATION

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|-----------|--|----------------|
| CURRENTLY | Ph.D. in Computational Neuroscience , EPFL, Lausanne (CH) <i>Advisors: Prof. Wulfram Gerstner & Ph.D. Johanni Brea</i> | |
| 2020 | M.Sc. in Neuroengineering , EPFL, Lausanne (CH) | GPA: 5.55/6.00 |
| 2017 | B.Eng. in Biomedical Engineering , Politecnico di Milano (IT) | GPA: 109/110 |
| 2014 | Electronics Highschool , IIS B.Castelli, Brescia (IT) | |

WORK EXPERIENCE

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|------|---|
| 2020 | Research Assistant , LREN lab at university hospital CHUV, Lausanne (CH) <i>Reinforcement learning modelling of fMRI data</i> |
| 2019 | R&D Intern , Logitech, Lausanne (CH) <i>Neuromorphic computing for speech detection</i> |

SELECTED PUBLICATIONS

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| 2024 | “Expand-and-Cluster: Parameter Recovery of Neural Networks” ICML 2024 <i>Martinelli, F., Şimşek B., Gerstner W.* & Brea J.*</i> |
| 2024 | “Actor-Critic Networks with Analogue Memristors Mimicking Reward-Based Learning” Under review <i>Portner K.*, Zellweger T.*, Martinelli, F., ..., Offrein B., Gerstner W., Luisier M. & Emboras A.</i> |
| 2020 | “Spiking neural networks trained with backpropagation for low power neuromorphic implementation of voice activity detection” ICAASP 2020 <i>Martinelli, F., Dellaferrera G., Mainar P. & Cernak M.</i> |

* equal contribution

HONORS AND AWARDS

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| 2023 | Best Presentation Award , NeuroLeman Annual Meeting, Villars (CH) |
| 2020 | Mention of Excellence for final GPA, EPFL, Lausanne (CH) |
| 2014-2017 | High Merits tuition exemptions, Politecnico di Milano (IT) |
| 2013 | First Place at National Electronics Competition , Bergamo (IT) |

SKILLS

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| CODING | Python, Julia, MATLAB, C/C++ |
| TOOLS | PyTorch, Git, Shell, Kubernetes |
| SOFT | Teaching, Project design, Supervision |

LANGUAGES

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| ITALIAN | Native |
| ENGLISH | Professional |
| FRENCH | Intermediate |

INVITED TALKS

- 2024 “From Loss Landscape Geometry to Parameter Recovery”
 Tim Vogels’s group, Institute of Science and Technology, Vienna (AT)
- “Expand-and-Cluster: Parameter Recovery of Neural Networks”
 Jakob Macke’s group, Max Planck Institute for Intelligent Systems, Tübingen (DE)
- “Expand-and-Cluster: Parameter Recovery of Neural Networks”
 Swiss Computational Neuroscience Retreat 2024, Crans-Montana (CH)
- 2023 “Expand-and-Cluster: Parameter Recovery of Neural Networks”
 Annual Meeting of the NeuroLeman Network 2023, Villars (CH)
- “Expand-and-Cluster: Parameter Recovery of Neural Networks”
 Angelika Steger and Joao Sacramento’s groups, ETH, Zurich (CH)

CONFERENCE ACTIVITIES

- 2024 **ICML**: poster, Vienna (AT)
- 2024 **Youth in High-Dimensions**: poster, Trieste (IT)
- 2023 **NeuroLeman Meeting**: talk and poster, Villars (CH)
- 2022-2023 **Bernstein Conference**: poster, Berlin (IT)

TEACHING EXPERIENCE (TA)

- 2023 **Computational Neuroscience: Neuronal Dynamics**, EPFL master course
- 2022 **Biological Modelling of Neural Networks**, EPFL master course
- 2021-2023 **Introduction to Machine Learning for Bioengineers**, EPFL bachelor course
- 2021- **Supervisor of Master Students**: R. Palazzo, A. Salvatore, A. Beiser

CONTRIBUTED PUBLICATIONS

- 2023 “MLPGradientFlow: going with the flow of multilayer perceptrons (and finding minima fast and accurately)”
 ArXiv
 Brea J., **Martinelli, F.**, Şimşek B. & Gerstner W.
- 2020 “A Bin Encoding Training of a Spiking Neural Network Based Voice Activity Detection”
 ICAASP 2020
 Dellaferrera G., **Martinelli, F.** & Cernak M.