

FLAVIO MARTINELLI

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EDUCATION

last updated July 28, 2024

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

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

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

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

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

LANGUAGES

ITALIAN	Native
ENGLISH	Professional
FRENCH	Intermediate

INVITED TALKS

- 2024 “From Loss Landscape Geometry to Weight Recovery in Neural Networks”
 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.