FLAVIO MARTINELLI

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EDUCATION

last updated September 5, 2024

CURRENTLY **Ph.D. in Computational Neuroscience**, EPFL, Lausanne (CH)
Advisors: Prof. Wulfram Gerstner & Ph.D. Johanni Brea

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)
Reinforcement learning modelling of fMRI data

2019 **R&D Intern**, Logitech, Lausanne (CH)
Neuromorphic computing for speech detection

SELECTED PUBLICATIONS

2024 "Expand-and-Cluster: Parameter Recovery of Neural Networks"
ICML 2024
***Martinelli, F.**, Şimşek B., Gerstner W.* & Brea J.**

2024 "Actor-Critic Networks with Analogue Memristors Mimicking Reward-Based Learning"
Under review
Portner K., Zellweger T.*, **Martinelli, F.**, ..., Offrein B., Gerstner W., Luisier M. & Emboras A.*

2020 "Spiking neural networks trained with backpropagation for low power neuromorphic implementation of voice activity detection"
ICAASP 2020
***Martinelli, F.**, Dellaferrera G., Mainar P. & Cernak M.*

** 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

	"Expand-and-Cluster: Parameter Recovery of Neural Networks" **EfficientML reading group**, Graz University of Technology, Graz (AT)
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.*