FLAVIO MARTINELLI

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EDUCATION

last updated November 25, 2025

2021-2026	**EPFL**, Ph.D. in Computational Neuroscience, Lausanne (CH) *Advisors: Prof. Wulfram Gerstner & Ph.D. Johanni Brea*	
2025	**Harvard**, Visiting Doctoral Student, Boston (US) *Advisor: Prof. Kanaka Rajan*	
2020	**EPFL**, M.Sc. in Life Sciences and Technologies, Lausanne (CH)	GPA: 5.55/6.00
2017	**Politecnico di Milano**, B.Eng. in Biomedical Engineering, Milano (IT)	GPA: 109/110
2014	**IIS B.Castelli**, Electronics Highschool, Brescia (IT)	

WORK EXPERIENCE

2020	**LREN**, Research Assistant at university hospital (CHUV), Lausanne (CH) *Reinforcement learning modelling of fMRI data*
2019	**Logitech**, R&D Intern, Lausanne (CH) *Neuromorphic computing for speech detection*

SELECTED PUBLICATIONS

2025	**NeurIPS 2025**: "*Flat Channels to Infinity in Neural Loss Landscapes*" Martinelli, F.*, Van Meegen A.*, Şimşek B., Gerstner W. & Brea J.
2025	**Nature Machine Intelligence**: "*Actor-Critic Networks with Analogue Memristors Mimicking Reward-Based Learning*" Portner K.*, Zellweger T.*, Martinelli, F., ..., Offrein B., Gerstner W., Luisier M. & Emboras A.
2024	**ICML 2024**: "*Expand-and-Cluster: Parameter Recovery of Neural Networks*" Martinelli, F., Şimşek B., Gerstner W.* & Brea J.*
2020	**ICAASP 2020**: "*Spiking neural networks trained with backpropagation for low power neuromorphic implementation of voice activity detection*" 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

2025 *"Flat Channels to Infinity in Neural Loss Landscapes"*
EPFL, Lausanne (CH), ELLIS pre-NeurIPS event

"Flat Channels to Infinity in Neural Loss Landscapes"
Online, Ploutos platform

"Reverse Engineering Neural Circuits: Insights from Loss Landscape Geometry"
Harvard University, Boston (USA), Kanaka Rajan's group

2024 *"Expand-and-Cluster: Parameter Recovery of Neural Networks"*
Graz University of Technology, Graz (AT), EfficientML reading group

"From Loss Landscape Geometry to Weight Recovery in Neural Networks"
Institute of Science and Technology, Vienna (AT), Tim Vogels's group

"Expand-and-Cluster: Parameter Recovery of Neural Networks"
Max Planck Institute for Intelligent Systems, Tübingen (DE), Jakob Macke's group

"Expand-and-Cluster: Parameter Recovery of Neural Networks"
Crans-Montana (CH), Swiss Computational Neuroscience Retreat 2024

2023 *"Expand-and-Cluster: Parameter Recovery of Neural Networks"*
Villars (CH), Annual Meeting of the NeuroLeman Network 2023

"Expand-and-Cluster: Parameter Recovery of Neural Networks"
ETH, Zurich (CH), Angelika Steger and Joao Sacramento's groups

COURSES AND WORKSHOPS

2025 **MIT Brains, Minds and Machines** summer course, Woods Hole, MA (USA)

CONFERENCE ACTIVITIES

2025 **UniREPS**: poster, San Diego (USA)
NeurIPS: poster, San Diego (USA)
Bernstein Conference: poster, Frankfurt (DE)
Frontiers in NeuroAI: poster, Boston (USA)
Spring into Science (Harvard Kempner Institute): poster, Boston (USA)
2024 **ICML**: poster, Vienna (AT)
Youth in High-Dimensions: poster, Trieste (IT)
2023 **NeuroLeman Meeting**: talk and poster, Villars (CH)
Bernstein Conference: poster, Berlin (DE)
2022 **Bernstein Conference**: poster, Berlin (DE)

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- **Supervised 5 Master Students**:
R. Palazzo, A. Salvatore, A. Beiser, M. Brodeur, R. Jabyiev

CONTRIBUTED PUBLICATIONS

2025 **NeurIPS 2025 (spotlight)**: "*Measuring and Controlling Solution Degeneracy across Task-Trained Recurrent Neural Networks*"
Huang A., Singh S.H., Martinelli, F. & Rajan K.

2023 **ArXiv**: "*MLPGradientFlow: going with the flow of multilayer perceptrons (and finding minima fast and accurately)*"
Brea J., Martinelli, F., Şimşek B. & Gerstner W.

2020 **ICAASP 2020**: "*A Bin Encoding Training of a Spiking Neural Network Based Voice Activity Detection*"
Dellaferrera G., Martinelli, F. & Cernak M.