Victor Letzelter

PhD Student in Machine Learning, Paris, France

letzelter.victor@hotmail.fr | @Victorletzelter | victorletzelter.github.io | +33 6 42 07 42 83

Education

PhD in Machine Learning at **Telecom Paris** (Palaiseau, France) 2023 – Present
PhD research on data uncertainty prediction with deep neural networks, resulting in publications [1, 2, 3, 4, 5, 6, 7] with open-sourced repositories and weights.

MRes Mathematics, Vision, and Learning (MVA) at **ENS Paris-Saclay** 2021 – 2022
Deep learning in theory and practice, optimization and probabilistic methods, with applications to computer vision, graph, and time-series processing. GPA: 83% with highest honors.

MSc in Applied Maths (Eng. Degree) at **Mines de Saint-Étienne** (Saint-Étienne, France) 2019 – 2022
Specialization in applied mathematics; machine learning foundations, probability theory, statistics, and quantum physics. Graduated with a GPA of 87%.

Bachelor in Mathematics at Université Jean-Monnet (Saint-Etienne, France) 2020 – 2021
Alongside Mines de Saint-Étienne; measure theory, differential calculus, topology. GPA: 79%.

Preparation classes at Lycée Fabert (Metz, France) 2017 – 2019
Field MPSI-MP* – Intensive courses in Maths, Physics, and Computer Science to prepare for competitive exams. Admitted to Mines de Saint-Etienne ("Mines-Ponts" competitive exams).

Work Experience

PhD Student at **Valeo.ai** (Paris, France) 2023 – Present
Learning with *multiple hypotheses* from ambiguous signals: "Winner-takes-all" training and applications; causal language modeling, audio/image captioning, perception, and time-series forecasting. Supervisors: G.Richard, A.Bursuc, M.Fontaine, S.Essid, and P.Pérez.

Research Scientist at **Valeo.ai** (Paris, France) Dec. 2022 – Mar. 2023
Research position before the start of the PhD. Supervisor: Patrick Pérez.

Research Intern at **Neural Concept** (Lausanne, Switzerland) Apr. 2022 – Sept. 2022
Neural Concept leverages geometric deep learning for physics. Research topic: Multi-task Learning on geometric neural networks. Supervisor: Jonathan Donier.

Research Intern at the **National Laboratory of Fusion** (Madrid, Spain) June 2021 – Aug. 2021
Developed a probabilistic model for time-series data generation.

Selected publications **Equal contribution.* Full list on next page.

V. Letzelter*, H. Malard*, M. Fontaine, G. Richard, S. Essid, A. Bursuc, and P. Pérez. "Multiple Choice Learning of Low Rank Adapters for Language Modeling". In: *arXiv* (2025). [Paper] [Code].

A. Cortes*, R. Rehm, and **V. Letzelter***. "Winner-Takes-All for Multivariate Probabilistic Time Series Forecasting". In: ***ICML***. [Paper] [Code]. 2025.

D. Perera*, **V. Letzelter***, T. Mariotte, A. Cortés, M. Chen, S. Essid, and G. Richard. "Annealed Multiple Choice Learning: Overcoming limitations of Winner-takes-all with annealing". In: ***NeurIPS***. [Paper] [Code]. 2024.

V. Letzelter*, D. Perera*, C. Rommel, M. Fontaine, S. Essid, G. Richard, and P. Pérez. "Winner-takes-all learners are geometry-aware conditional density estimators". In: ***ICML***. [Paper] [Code]. 2024.

V. Letzelter, M. Fontaine, M. Chen, P. Pérez, S. Essid, and G. Richard. "Resilient Multiple Choice Learning: A learned scoring scheme with application to audio scene analysis". In: ***NeurIPS***. [Paper] [Code]. 2023.

Skills

French: Native language.
English: Proficient.
German: Beginner.

Tools: Python, Git, LaTeX (proficient); Shell, Slurm, R (basic).
Libraries: Torch, HF, NumPy, SciPy, Pandas, Hydra, MLflow, etc.
Skills: Research methodology, theory, protocols, reproducibility.

Other

Service. Reviewer: ICML24, NeurIPS25, ICLR26. Teaching: Gaussian Processes and DL (IPP).
Invited talks. NeurIPS in Paris, UPF Barcelona, Flatiron Institute, Charles University in Prague.
Sports. Running (official races), trekking, cycling, swimming, skiing, tennis, ping-pong.
Interests. Financial markets, mentoring in maths, physics, and CS (> 1k hrs), music, chess, astrophysics.

Full publication list Scholar *Equal contribution

[1] **V. Letzelter***, H. Malard*, M. Fontaine, G. Richard, S. Essid, A. Bursuc, and P. Pérez. "Multiple Choice Learning of Low Rank Adapters for Language Modeling". In: *arXiv preprint arXiv:2507.10419* (2025).

[2] A. Cortes*, R. Rehm, and **V. Letzelter***. "Winner-Takes-All for Multivariate Probabilistic Time Series Forecasting". In: ***ICML***. 2025.

[3] Y. Xu*, **V. Letzelter***, M. Chen, É. Zablocki, and M. Cord. "Annealed Winner-Takes-All for Motion Forecasting". In: ***ICRA***. 2025.

[4] D. Perera*, **V. Letzelter***, T. Mariotte, A. Cortés, M. Chen, S. Essid, and G. Richard. "Annealed Multiple Choice Learning: Overcoming limitations of Winner-takes-all with annealing". In: ***NeurIPS***. 2024.

[5] C. Rommel, **V. Letzelter**, N. Samet, R. Marlet, M. Cord, P. Pérez, and E. Valle. "ManiPose: Manifold-Constrained Multi-Hypothesis 3D Human Pose Estimation". In: ***NeurIPS***. 2024.

[6] **V. Letzelter***, D. Perera*, C. Rommel, M. Fontaine, S. Essid, G. Richard, and P. Pérez. "Winner-takes-all learners are geometry-aware conditional density estimators". In: ***ICML***. 2024.

[7] **V. Letzelter**, M. Fontaine, M. Chen, P. Pérez, S. Essid, and G. Richard. "Resilient Multiple Choice Learning: A learned scoring scheme with application to audio scene analysis". In: ***NeurIPS***. 2023.