Victor Letzelter

PhD Student in Machine Learning, Paris, France

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Education

PhD in Machine Learning at **Telecom Paris** (Palaiseau, France) 2023 – Present
The PhD research on data uncertainty quantification with deep neural networks has resulted in publications [1, 2, 3, 4] and open-sourced repositories.

MRes Mathematics, Vision, and Learning (MVA) at **ENS Paris-Saclay** 2021 – 2022
Specialized in deep learning, computational statistics and convex optimization, applied to computer vision, graphs and time series processing. GPA: 83% with highest honors.

MSc in Data Science at **Mines de Saint-Étienne** (Saint-Étienne, France) 2019 – 2022
Covered advanced topics in probabilities, statistics, machine learning, 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* – Intensives courses in Maths, Physics, and Computer Science to prepare for competitive exams. Admitted at Mines de Saint-Etienne ('Mines-Ponts' Competitive Exams).

Work Experience

PhD Student at **Valeo.ai** (Paris, France) 2023 – Present
Focus on *multi-hypotheses* models for uncertainty quantification applied to audio processing and machine vision. Supervised by G. Richard, M. Fontaine, and M. Chen.

Research Scientist at **Valeo.ai** (Paris, France) Dec. 2022 – Mar. 2023
Research position before the start of a 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
Development of a probabilistic model for data generation. Design of a Deep learning algorithm for event detection in time series of electrostatic potential.

Publications Scholar *Equal contribution

[1] 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.

[2] 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.

[3] **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.

[4] **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.

Skills

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

Tools: Python, Git, LaTeX (proficient); Shell, R, C and Java (basic).
Libraries: PyTorch, NumPy, SciPy, HuggingFace, Scikit-Learn, MLFlow.
Skills: Research methodology, theory, experimental protocols, ablations.

Interests

Sports. Running, Trekking, Road and mountain biking, Swimming, Skiing, Table tennis.
Music and association. Piano (10 years). Musical production (FL Studio 20) and animation (DJ).
Other. Chess, Market Finance.