



Hugo Thimonier, PhD

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 📄 Google Scholar 📄 arXiv

About Me

I am a Multimodal Research Scientist at Emobot, working on **Machine Learning (ML) for Audio and Video**. I hold a PhD in Computer Science from CentraleSupélec focused on **deep learning for tabular data**, in particular **anomaly detection** and **self-supervised learning** for tabular data. Prior to my PhD, I worked as a deep learning scientist intern at L'Oreal R&I where I focused on ML for video.

Education

Ph.D	CentraleSupélec, LISN , Computer Science	2020 - 2024
	<ul style="list-style-type: none"> • Title: Advancing Anomaly Detection in Tabular Data: A Case-Study on Credit Card Fraud Identification. • Supervisors: Bich-Liên Doan, Fabrice Popineau, Arpad Rimmel. • Jury: Louise Travé-Massuyès, Alain Celisse, Marius Kloft, Gaël Varoquaux and Alamir Mazen. 	
M.Eng	ENSAE , <i>Statistics, Probabilities and Computer Science</i>	2018 - 2020
M.Sc	ENS Paris-Saclay , <i>Normalien Fonctionnaire-Stagiaire</i>	2015 - 2020
DU	Paris 1 - Panthéon Sorbonne , Russian	2020 - 2022

Experience

Emobot , Multimodal Research Scientist	Paris, Fr 2024 - now
CentraleSupélec, LISN , PhD Candidate <ul style="list-style-type: none"> • Topics: <i>Anomaly Detection, Self-Supervised Learning, Deep-Learning for Tabular Data</i>. • Proposed three novel anomaly detection methods for tabular data: improved my project management capabilities. • Supervised a research project of a 1st-year PhD Student: improved my management skills. • Coded from scratch deep learning models in PyTorch and Python. • Presented my research to multidisciplinary seminars: improved my popularization skills. 	Paris, Fr 2020 - 2024
CentraleSupélec , Teacher in the Computer Science Department <ul style="list-style-type: none"> • Course: <i>Python</i> (24h/year), <i>Artificial Intelligence</i> (20h/year). • Topics Covered: <i>OOP, Algorithmic, Data types, Machine Learning, Search Problems (e.g. Adversarial Search Problems, Local Search Problems), Markov Decision Process, Reinforcement Learning, Logic</i>. 	Paris, Fr 2020 - 2024
L'Oreal Research & Innovation , Deep Learning Scientist Intern <ul style="list-style-type: none"> • Developed a novel post-processing model to enforce temporal consistency in videos which were processed frame by frame using non-transformation equivariant image-trained algorithms (Paper: here). 	Paris, Fr 2019 (6 months)

Skills & Interests

Languages: French (native), English (fluent), Spanish (B1), Russian (A2).

Coding: Python, LaTeX, SLURM, Gitlab/GitHub, UNIX.

ML Toolkit: PyTorch, Scikit-learn, Pandas, Numpy, W&B, Docker.

Sport: Tennis, Running (**STRAVA**), Fly Fishing, Chess (♟).

Volunteering: Mathematics teacher at Institut Villebon Georges Charpak (2019-2020).

Publications

Conference Proceedings

- [1] **Hugo Thimonier** et al. “Beyond Individual Input for Deep Anomaly Detection on Tabular Data”. In: *Proceedings of the 41st International Conference on Machine Learning*. Ed. by Ruslan Salakhutdinov et al. Vol. 235. Proceedings of Machine Learning Research. PMLR, 21–27 Jul 2024, pp. 48097–48123. URL: <https://proceedings.mlr.press/v235/thimonier24a.html>.
- [2] **Hugo Thimonier** et al. “Comparative Evaluation of Anomaly Detection Methods for Fraud Detection in Online Credit Card Payments”. In: *Proceedings of Ninth International Congress on Information and Communication Technology*. Ed. by Xin-She Yang et al. Singapore: Springer Nature Singapore, 2024, pp. 37–50. ISBN: 978-981-97-4581-4.
- [3] **Hugo Thimonier** et al. “Learning Long Term Style Preserving Blind Video Temporal Consistency”. In: *2021 IEEE International Conference on Multimedia and Expo (ICME)*. 2021, pp. 1–6. doi: [10.1109/ICME51207.2021.9428445](https://doi.org/10.1109/ICME51207.2021.9428445) [↗](#).
- [4] **Hugo Thimonier** et al. “Retrieval Augmented Deep Anomaly Detection for Tabular Data”. In: *Proceedings of the 33rd ACM International Conference on Information and Knowledge Management (CIKM '24)*, Boise, ID, USA. New York, NY, USA: Association for Computing Machinery, 2024. doi: <https://doi.org/10.1145/3627673.3679559> [↗](#).
- [6] **Hugo Thimonier** et al. “TracInAD: Measuring Influence for Anomaly Detection”. In: *2022 International Joint Conference on Neural Networks (IJCNN)*. 2022, pp. 1–6. doi: [10.1109/IJCNN55064.2022.9892058](https://doi.org/10.1109/IJCNN55064.2022.9892058) [↗](#).

Preprints

- [5] **Hugo Thimonier** et al. *T-JEPA: Augmentation-Free Self-Supervised Learning for Tabular Data*. 2024. arXiv: [2410.05016](https://arxiv.org/abs/2410.05016) [cs.LG] [↗](#). URL: <https://arxiv.org/abs/2410.05016>.

References

Available on Request.