Hugo Thimonier
3rd Year PhD Candidate in Machine Learning
Expected Graduation: September 2024

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I am a 3rd year PhD Student at CentraleSupelec working on **deep learning for tabular data**, with a particular focus on **anomaly detection** and **self-supervised learning**. Prior to my PhD I had been working on **computer vision and video processing** using deep models.

Employment History

2021 – ...
Ph.D. Candidate in Computer Science, , CentraleSupelec.
Topics covered: *Anomaly Detection, Self-Supervised Learning, Deep-Learning for Tabular Data.*
- Proposed **3 novel anomaly detection** methods for tabular data: improved my **project management** capabilities.
- Supervised an internship and group projects for final year CentraleSupelec students: improved my **management skills**.
- Multidisciplinary seminars in computer science: improved my **popularization** capacity.
- Coded from scratch deep learning models in PyTorch and Python.
- Currently working on a representation learning for tabular data involving a novel self-supervised approach.

2023
Teacher Computer Science Department, CentraleSupelec.
Course: *Python* (24h)
Topics Covered: *OOP, Algorithmic, Data types...etc*

2021 – 2022
Teaching Assistant Computer Science Department, CentraleSupelec.
Course: *Artificial Intelligence* (20h)
Topics Covered: *Machine Learning, Search Problems (e.g. Adversarial Search Problems, Local Search Problems), Markov Decision Process, Reinforcement Learning, Logic.*

2021
Deep Learning Scientist Intern, L'Oreal Research & Innovation. (6 months)
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, Supplementary material: here)
- Computer Vision.
- Deep learning for CV: CNN, ConvLSTM, Temporal Warping.
- **Team work** and Long term **project management**.

Education

2021 – · · · ·
Ph.D. Candidate, CentraleSupelec Computer Science.

2015 – 2020
Normalien Fonctionnaire-Stagiaire, ENS Paris-Saclay

2018 – 2020
M.Sc. Engineering, ENSAE, Statistics, Probabilities and Computer Science.

2020 – 2021
One-year University Diploma, Sorbonne University Russian.
This diploma grants me A2 level and would allows me to pursue a Bachelor in Russian.

Skills & Interests

Languages	French (native), English (fluent), Spanish (B1), Russian (A2)
Coding	Python, LaTeX, SLURM, Gitlab/GitHub, UNIX
Machine Learning	PyTorch, Scikit-learn, Pandas, Numpy…
Sports	Running, Tennis, Chess.
Other	Electronic music production, russian 19th literature.
Volunteering	Mathematics teacher at Institut Villebon Georges Charpak (2019-2020).

Research Publications

Conference Proceedings

1. H. Thimonier, F. Popineau, A. Rimmel, and B.-L. Doan, "Beyond individual input for deep anomaly detection on tabular data," in *Proceedings of the 41st International Conference on Machine Learning, ICML 2024, Vienna, Austria*, ser. Proceedings of Machine Learning Research, vol. 235, PMLR, Jul. 2024.
2. H. Thimonier, F. Popineau, A. Rimmel, and B.-L. Doan, "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.
3. H. Thimonier, F. Popineau, A. Rimmel, B.-L. Doan, and F. Daniel, "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.
4. H. Thimonier, J. Despois, R. Kips, and M. Perrot, "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.

Preprints

1. H. Thimonier, F. Popineau, A. Rimmel, B.-L. Doan, and F. Daniel, *Comparative evaluation of anomaly detection methods for fraud detection in online credit card payments*, 2023. arXiv: 2312.13896 [cs.LG].

Oral and Poster Presentations

Oral Presentation

2024 **Anomaly Detection Conference - CentraleSupelec (DataIA) (2024)**, Paris (Fr). Presented a synthesis of my papers *Beyond individual input for deep anomaly detection on tabular data* and *Retrieval augmented deep anomaly detection for tabular data*.

2022 **IJCNN 2022**, Padova (It). Presented my paper *TracInAD: Measuring influence for anomaly detection*.

2021 **ICME 2021**, Virtual. Presented my paper *Learning long term style preserving blind video temporal consistency*.

Poster

2024 **CIKM 2024**, Boise (ID, USA). Presented our paper *Retrieval augmented deep anomaly detection for tabular data*.

ICML 2024, Vienna (Austria). Presented our paper *Beyond individual input for deep anomaly detection on tabular data*.

Oral and Poster Presentations (continued)

2023 **NeurIPS 2023**, New Orleans (USA). Presented our paper *Beyond individual input for deep anomaly detection on tabular data* in the *Table Representation Learning Workshop*.

2022 **Symposium GDR MaDICS**, Lyon (Fr). Presented current work on anomaly detection.

References

Available on Request