Marc Pinet

marc.pinet.06@gmail.com @marcpinet marc-pinet
available upon request https://marcpinet.fr/

PhD Researcher with 1 year of experience in machine learning, deep learning, data science, and software engineering. Specialized in Self-Supervised Deep Learning for Anomaly Detection in Time Series and XAI. Contributor to multiple open-source projects, with international experience across France, Canada, and Vietnam.

Professional Experience

2025 – 2028 **PhD Researcher in Machine Learning**, Orange Innovation.
Self-supervised detection and explanation of anomalies in time series data for large-scale network security. Research focus on developing robust deep learning architectures for real-time anomaly characterization, and LLMs combined with RAG for automated interpretation using business knowledge bases, eliminating human expert intervention.

2025 – 2028 **Industrial PhD Student**, Grenoble Computer Science Laboratory (Inria/CNRS).
Research on self-supervised deep learning for time series anomaly detection and explanation in collaboration with Orange.

2024 – 2025 **AI/ML R&D Engineer Apprentice**, SAP Labs France.
Unsupervised anomaly detection system for heterogeneous data (logs, metrics, traces) using pattern variation detection, and time series correlation. Optimized real-time pipeline reducing memory by 70% and improving scalability 3x for 10M+ events/day. Built RAG-enhanced LLM agent for automated anomaly reports with root cause analysis.

2024 – 2024 **Data Scientist Intern**, SAP Labs France.
Time series trends analysis using tools such as Prophet, SARIMA, STL, and DTW. Identified correlations between logs and metrics to predict system behaviors. Built a robust pipeline for live data retrieval from internal APIs with integrated data preprocessing.

2022 – 2022 **IoT Developer Intern**, Da Nang International Institute of Technology, Vietnam.
Developed a LoRaWAN-based emergency messaging system, covering 25km range, ensuring emergency communication in remote areas without internet access.

Education

2025 – 2028 **Industrial PhD in Computer Science – Deep Learning**, Université Grenoble Alpes.
Thesis: *Self-supervised deep learning detection and explanation of anomalies in time series*.

2022 – 2025 **Engineer's Degree (with MSc) in Computer Science**, Polytech Nice Sophia.
Specialty: *Artificial Intelligence & Data Engineering*.

2022 – 2022 **Exchange Semester**, Université du Québec à Chicoutimi (UQAC), Canada.
In partnership with IUT Nice Côte d'Azur to reward my results and complete my diploma.

2020 – 2022 **Associate of Science in Computer Science**, IUT Nice Côte d'Azur.

Skills

Programming	Python, Java, C/C++, SQL, Bash, Software Engineering
Artificial Intelligence (AI)	Machine Learning, Deep Learning, Anomaly Detection, RAG, LLMs, XAI, Time Series Analysis, Self-Supervised Learning, Representation Learning, Data Science, Knowledge Graphs, Chain-of-Thought, Digital Twins. **Frameworks:** PyTorch, TensorFlow, JAX, Hugging Face Transformers, Scikit-learn.
MLOps & Cloud	Weights & Biases, MLflow, FastAPI, Docker, AWS, GCP, Azure, Git.

Skills (continued)

Other Skills	Scripting, Databases, Communication, Technical Writing, Teamwork.
Languages	French (Native), English (C1), Spanish (B1), Chinese (A1).

Projects I'm Proud Of

1. M. Pinet, *Mimimi*, Self-supervised complex neural network for machine sound anomaly detection using phase-aware spectral analysis. PyTorch implementation of EUSIPCO 2021 paper achieving 95.18% AUC on MIMII dataset, Jul. 2025. URL: https://github.com/marcpinet/mimimi.
2. M. Pinet and A. Rodriguez, *Olympics knowledge graph*, A semantic web project enriching Olympics data through spaCy's deep learning models and knowledge graphs. Features enrichments through APIs, SPARQL inference rules, and SHACL constraints. Expanded from 355 to 15,000+ triples with DBpedia/Wikidata linking, Jan. 2025. URL: https://github.com/marcpinet/websem-og24.
3. M. Pinet, *Neuralnetlib*, A flexible machine & deep learning framework built from scratch using only NumPy. Supports a large amount of network architectures, layers, activations, losses, optimizers and ML tools, Nov. 2024. URL: https://github.com/marcpinet/neuralnetlib.
4. M. Pinet, *Handigits*, Background-independent deep learning model for hand sign digit recognition. Used my own framework (Neuralnetlib) for model training and inference, and Google MediaPipe for hand tracking and preprocessing, May 2024. URL: https://github.com/marcpinet/handigits.
5. M. Pinet, *Edgeai: Bird species detection*, CNN-based bird species audio recognition, optimized using TinyML on STM32 microcontroller with real-time I2S audio processing, 16-bit fixed-point quantization, and LoRaWAN IoT connectivity achieving 86% accuracy with optimized memory footprint for embedded deployment, Apr. 2024. URL: https://github.com/marcpinet/edgeai-bird.
6. M. Pinet, *Neat cars*, Autonomous vehicle AI agents leveraging NEAT genetic programming and evolutionary reinforcement learning to optimize neural network topologies with real-time visualization and multi-generational evolution, Mar. 2023. URL: https://github.com/marcpinet/neat-cars.
7. M. Pinet, *Epidemic modeling*, Visual simulation of a pandemic spread, following the SEIRD model, with statistical summary graphs based on simulated data. Validated against research literature with real-time intervention scenario analysis, Dec. 2021. URL: https://github.com/marcpinet/epidemic-modeling.

Miscellaneous Experience

Certifications

- 2025 **Stanford | DeepLearning.AI Deep Learning Specialization (Coursera)**.
- 2025 **Stanford | DeepLearning.AI Machine Learning Specialization (Coursera)**.
- 2024 **TOEIC (ETS)** – Score: 950/990.
- 2023 **Quantum Computing and Information Summer School (EIT Digital)**.

Licenses

- 2024 Boating License.
- 2022 Driver's License.