Laurent Mathe

Email: mathe.laurent.lm@gmail.com
LinkedIn: https://www.linkedin.com/in/laurent-mathe-56985724a
GitHub: https://github.com/laurentmathe
Personal Website: https://laurentmathe.github.io

EDUCATION

Master of Science in Energy and Environmental Engineering (equivalent to Diplôme d'Ingénieur, in progress) 2022–2025
Grenoble INP, Phelma-ENSE3 Program, Grenoble, France

- Specialization: Computer Science and Artificial Intelligence
- Focus: Signal Processing, Data Analysis, Image Processing, Machine Learning, Deep Learning
- Relevant Coursework: Machine Learning, Deep Learning, Artificial Intelligence, Signal Processing, Data Analysis

Study Abroad Semester 2024–2025
École de Technologie Supérieure (ETS), Montreal, Canada

- Courses: Signal Processing, Deep Learning, Artificial Intelligence, Algorithms for Financial Engineering and Cybersecurity
- Gained international exposure to AI and machine learning applications

Preparatory Program for Engineering Schools (equivalent to the first two years of a Bachelor's degree in Physics and Mathematics) 2019–2022
Lycée Marcelin Berthelot, Saint-Maur-des-Fossés, France

- Intensive 3-year preparation in Mathematics, Physics, and Chemistry for engineering school entrance exams
- Relevant Coursework: Calculus, Linear Algebra, Topology, Discrete Probability

PROFESSIONAL EXPERIENCE

Research Intern February 2025 – Present
Mila - Quebec AI Institute (in partnership with Google Research), affiliated with TISL Lab at ÉTS Montréal, Montreal, Quebec, Canada

- Conducted research on AI agents and artificial intelligence, focusing on benchmarking and developing tools to assess AI assistants' ability to understand and protect interdependent privacy
- Utilized advanced privacy-preserving techniques to ensure secure and ethical AI applications
- Collaborated with Google Research to advance the field of privacy in AI systems

AI Engineering Intern – Independent AI Solutions Developer June 2024 – August 2024
Ulysse Guibert, Remote

- Developed an AI-powered sports coaching solution with real-time performance analysis using Convolutional Neural Networks (CNNs)
- Improved segmentation accuracy on a large dataset of images using TensorFlow for fine-tuning and model optimization
- Designed an automated pipeline for data augmentation and normalization, significantly reducing preparation time using Python and machine learning techniques
- Managed the entire project lifecycle: development, testing, and deployment of a real-time AI application

Logistics Operator June 2023 – July 2023
Cubyn, France

- Brief experience in logistics operations

Receptionist and Client Relations Officer August 2023
Société Générale Bank, France

- Brief experience in client support and administrative tasks

ACADEMIC AND PERSONAL PROJECTS

Fine-Tuning DistilGPT2 for NLP Chatbot 2024
Personal Project

- Optimized a chatbot using DistilGPT2 with LoRA and 8-bit quantization in resource-constrained environments for enhanced performance
- Applied Natural Language Processing (NLP) techniques to improve response accuracy and efficiency
- Technologies: Python, PyTorch, Hugging Face Transformers, NLP

Handwritten Digit Classification with MLP 2023
Academic Project, Grenoble INP

- Achieved high accuracy on a dataset of handwritten digits using a Multi-Layer Perceptron (MLP) for classification
- Implemented the model in Matlab, focusing on neural network optimization and evaluation
- Technologies: Matlab, Neural Networks, Machine Learning

Energy Consumption Prediction for Buildings 2023
Academic Project, Grenoble INP

- Developed a predictive model using K-Nearest Neighbors, Polynomial Regression, and Random Forest algorithms
- Analyzed energy consumption patterns in buildings to optimize resource usage
- Technologies: Python, Scikit-learn, Machine Learning, Data Analysis

Development of a Python Assembler in C 2022
Academic Project, Grenoble INP

- Designed and implemented a Python assembler with comprehensive unit tests, ensuring high reliability
- Followed Agile methodology for project development and testing
- Technologies: C, Python, Software Engineering, Agile

SKILLS

- **Programming Languages**: Python, C, Matlab,C++, Java, VHDL
- **Machine Learning Frameworks**: TensorFlow, PyTorch, Scikit-learn
- **Natural Language Processing (NLP)**: Hugging Face Transformers, DistilGPT2, LoRA, 8-bit Quantization, Ollama
- **Deep Learning**: Convolutional Neural Networks (CNNs), Multi-Layer Perceptrons (MLPs), Neural Network Optimization
- **Techniques**: Signal Processing, Image Processing, Data Analysis, Model Fine-Tuning, Data Augmentation
- **Experience with LLM Agents**: Beginner (< 1 year)

- **Software Engineering**: Agile Methodology, Unit Testing, Software Development Lifecycle
- **Other**: Data Pipelines, Real-Time Applications, AI-Assisted Robotics, Privacy-Preserving Techniques

ADDITIONAL INFORMATION

- **Country**: France
- **Languages**: French (Native), English (Fluent)
- **Availability**: Willing to relocate internationally for AI engineering opportunities