Theo Gachet

Machine Learning Research Engineer Intern
MSc student passionate about computer science and mathematics

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Feel free to visit my portfolio :
theogachet.com

Professional Experience

Machine Learning Engineer · European Space Agency (ESA) April 2024

- Implemented promising techniques and open-source frameworks related to robustness and uncertainty quantification methods for space application and evaluated the possibility to use these methods on-board

Deep Learning Research Scientist Intern · CNRS – Inria Paris July 2023

- Optimized the effectiveness of Natural Language Processing by implementing Transformers and attention mechanisms inspired by human cognition

Freelance Project Researcher · Ministry of the Armed Forces July 2023

- Selected to undertake an analysis of immersive technologies (VR, AR, and MR)
- Conducted an in-depth study on their functional principle, their applications but also future possibilities in the fields of defense, security, and civilian use
- My research findings are now used by the Armed Forces (Army, Navy, Air Force)

Machine Learning Research Scientist Intern · CNRS – Inria Paris January 2023

- Uncertainty quantification in convolutional neural networks
- Reduction of epistemic and aleatoric uncertainties using Ensemble techniques and Bayesian methods (Monte Carlo dropout, variational autoencoders, etc.)

  - 40% reduction in MPIW for a real estate price prediction algorithm
  - 65% reduction in epistemic uncertainty
  - 30% reduction in aleatoric uncertainty

Education

Master's Degree in Computer Science · Mines de Saint-Etienne Sept 2022

- GPA (2023 Spring and Summer semester) : 4.0 / 4.0
- Ranked as one of the top graduate schools of engineering in France, the Ecole Nationale Supérieure des Mines de Saint-Étienne is one of the French "Grandes Écoles" and is dedicated to training highly qualified engineers

  - Computer Science (Python, C, C++, Machine Learning, algorithmics, RISC-V)
  - Electronics, robotics and nano systems (assembler, VHDL, SystemVerilog)
  - Management, innovation and entrepreneurship
  - Mathematics, physics and chemistry

French "Classes Préparatoires" · Lycée Saint-Louis, Paris Sept 2020

- Intensive two-year scientific cursus preparing for the competitive exams to enter the very selective and prestigious engineering schools known as "Grandes Écoles"

Selected Projects

Text Translation using attention mechanisms and Transformers July 2023

- Transformers, seq2seq, positional encoding, and encoder-decoder architecture
- Attention, self-attention and multi-head attention to optimize NLP tasks

Real Estate Price Prediction Algorithm across France Feb 2023

- Predictions based on surface area, neighborhood education level and crime rate
- Recalibration via UCC and data augmentation to prevent overfitting

Convolutional Neural Network for Pneumonia Diagnosis Oct 2022

- Machine Learning model for pneumonia diagnosis using radiology images
- Mark: 19 / 20 (national contest)

For the French version of my resume, please click here

Skills

Python, C/C++, TensorFlow, PyTorch, NumPy, SQL, Jupyter, MatLab, HTML, CSS, assembler SystemVerilog, RISC-V, VHDL, Cybersecurity, Julia, Office Suite, Sony Vegas, Photoshop

French	English	Italian
native	fluent TOEIC 970/990	proficient
Chinese	Dutch	Arabic
intermediate	beginner	intermediate

Honors and Awards

High School Scientific Diploma
Ranked 1st in France (mark: 20.6/20)

Python Optimization Contest
Ranked 1st among 95+ students

3D Modeling Competition
Ranked 1st - by the Robotics association

Robotics Hackathon
Ranked 2nd – by AREM & ST Microelectronics

Ecole Polytechnique Summer Camp
50 students admitted from all over France

National Chemistry Olympiads
Finalist in High School

Courses and Certificates

Machine Learning Specialization
Stanford University and Coursera

Stanford University (CS299)
Machine Learning Online Course

Harvard University (CS50)
Computer Science Online Course

Cambridge English Certificate
University of Cambridge

Kaggle Certificates
Machine Learning, Deep Learning

Associative Involvement

Secretary General · AI Instructor
MINITEL (computer science association)

Business Manager · Head of AI
Junior Mines Provence (junior enterprise)

Head of IT Services · Web Developer
Forum Entreprise ISMIN (business club)

Innovation Manager · Head of Strategy
AREM (robotics association)

Organizer of a humanitarian trip
Solidar'ISMIN (humanitarian association)

Interests   Volleyball, aviation, chess