Quentin VELARD
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Machine Learning Engineer with a MSc in Applied Mathematics and Data Science. Experienced in R&D analysis and machine learning through internships at Bpifrance, RMIT University and STMiroelectronics.

Experience

STMicroelectronics   *Feb. 2025 – Sept. 2025*
Computer Vision Research Engineer - End-of-study Internship   Grenoble, France
- Developed an AI model using Convolutional Neural Networks (CNN) in TensorFlow to predict the effects of radiation on semiconductor components, achieving a 10x speed improvement over the original simulator and designed for easy use by all company employees, including non-radiation experts.
- Designed and implemented a UNET architecture with parameter counts ranging from 760K to 100M to enhance model expressiveness, training efficiency, and scalability. Training was conducted on Nvidia H100 clusters using preprocessed data from physical description files, leveraging scikit-learn, Keras, ONNX
- Transitioned the tool from proof-of-concept to full production for FDSOI 28nm technology, and optimized with **quantization.**

RMIT University Laboratory   *Feb. 2024 – Jul. 2024*
Quantum Machine Learning Intern   Melbourne, Australia
- Co-author (2024), **QILLER: Quantum Incremental Learning for Lifelong Erosion Resilience in Variational Quantum Algorithms**, under peer-reviewing for IEEE submission.
- Adapted a classical incremental learning algorithm into a quantum version within an MLOps framework on PyTorch

Bpifrance, Public Investment Bank   *Jun. 2023 – Dec. 2023*
R&D Analyst Intern   Paris, France
- Evaluated and financed digital R&D innovation projects supporting French governmental strategies (France 2030). Engaged in discussions with entrepreneurs to explore financing options within the strategic framework.

Education

MSc in Applied Mathematics, Ecole des Mines   *Sept. 2021 – Feb. 2025*
French Engineering School   Nancy, France
- **Relevant Coursework:** Optimization, Data Analysis, Machine Learning, Deep Learning, Blockchain, Time Series, Probability
- **Core Courses:** Numerical Analysis, Quantum Mechanics, Statistical Physics

MSc in Data Science, University of Lorraine   *Sept. 2024 – Feb. 2025*
Dual degree   Nancy, France
- Stochastic Processes, Reinforcement Learning, Optimization, Scalable Database and System Architecture

Bachelor of Science equivalent, Sorbonne University - CPGE lycée Pasteur   *Sept. 2018 – Sept. 2021*
                                                                                   Neuilly-sur-Seine, France
- Intensive years of training in Mathematics, Physics, and Chemistry for French engineering competitive exams.

Projects

Antioxidant Biomolecule Generation via GAN and Fine-tuned LLM   *Sept. 2024 – Mar. 2025*
Academic project
- Developed deep learning tools to generate novel biomolecules with antioxidant and anti-inflammatory properties. See my website to view the report

Freelance   *Sept. 2023 – present*

- Web Scraping, Web Dev (dashboard, personal website), Automation with AI (n8n), Cryptocurrency awareness

Technical Skills

Programming: Python (NumPy, Pandas, Matplotlib, FastAPI, Scrapy, Playwright, Selenium), R, MATLAB, TypeScript, Bash, Linux
Machine Learning: PyTorch, TensorFlow, Keras, Scikit-learn, Hugging Face, CNN/YOLO, Vision-Language Models, LangChain (RAG), vLLM, LlamaIndex, Qiskit
Tools & Platforms: AWS, Git/GitHub/GitLab, CI/CD, React.js, HTML/CSS

Interests

Professional Interests : Member of the Student Scientific Convention on Hydrogen, supporter of the French Nuclear Energy Society (SFEN), regularly attends conferences on cryptocurrencies, blockchain, decentralized finance, AGI, AI for industry, and general models for robotics and UAV.
Sports : marathons, swimming, trekking, and mountaineering.