Julien Delavande

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Education

ENS Paris-Saclay 2024 – 2025
Master's in Mathematics, Vision, Learning (MVA) *Paris, France*
- **Anticipated Coursework**: Convex Optimization, Probabilistic Graphical Models and Deep Generative Models, Time Series, Advanced Learning for Text and Graph Data, Reinforcement Learning, Geometry Processing and Geometric Deep Learning, Object recognition and computer vision, Large Language Models, Generative models for images.

ISAE-SUPAERO 2020 – 2024
Master of Engineering, Data and Decision Science (GPA: 4.18/4.33, top 5%) *Toulouse, France*
- **Relevant Coursework**: Advanced Machine Learning, Deep Learning, Optimization, Statistics and Probability, Big Data Engineering
- **Thesis**: Optimization of Gains in Sports Betting. - Report - Summary - Try it

Marcelin Berthelot 2018 – 2020
PCSI - PC, Preparatory program for French top engineering schools (ranked 2nd in Mathematics).* *Saint-Maur-des-Fossés, France*

Professional Experience

Headmind AI April 2024 – September 2024
Data Scientist Intern *Paris, France*
- Conducted theoretical research to develop an innovative sports betting gains optimization system in soccer.
- Built real-time data pipelines and predictive models for soccer outcomes, ensuring seamless monitoring.
- Created bankroll optimization algorithms based on probabilistic models and player's risk tolerance, doubling bankroll in a month.
- Deployed the solution as a microservices architecture on Azure Kubernetes Service (AKS) with Airflow for orchestration.

Thales March 2023 – August 2023
Full-stack Developer - CDD *Prague, Czech Republic*
- Collaboratively developed a secure border control app with React.js and RESTful back-end delivered in 6 months, integrated into a larger microservices system. Contributed to Agile planning, reviews, and retrospectives.
- Developed unit and integration tests with Robot Framework, and worked closely with DevOps to implement CI/CD pipelines and manage Kubernetes deployments across test and production clusters.

Safran September 2022 – February 2023
Data Engineer & Quality Analyst - CDD *Pilsen, Czech Republic*
- Automated quality processes, data collection, and reporting with reducing manual effort by 70%.
- Monitored quality on 5 assembly lines, identified nonconformity sources, and provided actions, saving up to 5k€/month.

Polytechnique Montréal May 2022 – August 2022
Research Assistant *Montreal, Canada*
- Studied thermo-diffusive instabilities in flames and co-authored a paper in *Combustion and Flame*.

Projects

MistralBluff | *Mistral AI Fine-Tuning Hackathon* - Link *June 2024*
- Fine-tuned the Mistral 7B non-instruct model using LoRA on poker gameplay data, utilizing H100 GPUs to process 8 million tokens from a single professional player's logs. Achieved 94.5% accuracy in predicting professional moves, including similar opening strategies adapted to table position.

Octopus | *Hackathon Mistral AI* - Link *May 2024*
- Developed an AI-powered news feed using a Retrieval-Augmented Generation (RAG) system to provide real-time event summaries and context-aware answers, leveraging Groq Language Processing Units to achieve a low latency over an expanding article base.

Movement Detection in EEG Signals | *CHU Toulouse* - Link *Sep 2023 - April 2024*
- Developed a system predicting arm flexion from EEG time series of stroke patients (less than 1000 examples), achieving 85% inter-session and 76% inter-subject accuracy. The best results, using covariance tangent space with SVC, were achieved by leveraging Supaero HPC clusters. Implemented the system in an app for doctors to support rehabilitation.

Water Level Segmentation | *ISAE-SUPAERO Hackathon Winner* *March 2024*
- Fine-tuned a ResNet-50 model for water level segmentation, achieving an IoU score of 0.78 on surveillance camera images with varying exposures, including nighttime conditions, by adjusting the final layers for pixel-wise segmentation.

Other

Programming Languages: Python, JavaScript (React.js, Node.js), SQL, C, Java, Bash
Data Science & Machine Learning: PyTorch, Scikit-learn, MLflow, Pandas, NumPy, SciPy, transformers
DevOps & Cloud: Docker, Kubernetes, Azure (AZ-900), AWS, GCP, CI/CD (Jenkins), Prometheus, Grafana
Databases and Big Data: PostgreSQL, MongoDB, Spark, Dask, Airflow
Software Development: Django, HTML, CSS, FastAPI
Tools: Jupyter Notebook, Power BI, Git, Jira, Databricks
Languages: French (native), English (Professional proficiency - TOEFL IBT 106/120), German (intermediate, B1)