

EDUCATION

2022-2025	Engineer in Applied Mathematics & Scientific Computing <i>Sup Galilée Engineering School, Sorbonne Paris Nord University – Paris, France</i>
2023	Bachelor's Degree in Mathematical Modeling and Engineering <i>Institut Galilée, Sorbonne Paris Nord University – Paris, France</i>
2020-2022	Preparatory Classes for Engineering Schools (CPGE) - Physics and Engineering Sciences <i>Ibn Ghazi – Rabat, Morocco</i>
2020	International Baccalaureate High School Equivalence : Physics Option

PROFESSIONAL EXPERIENCES

Summer 2023 <i>(2 months)</i>	AI Barid Bank: Internship in the Business Intelligence Department – Predictive Analysis of Time Deposit Subscriptions
	<ul style="list-style-type: none">Conducted a thorough analysis to understand the business problem, including customer segmentation and key factors influencing subscription decisions.Leveraged SQL for data manipulation.Implemented preprocessing using sklearn.preprocessing to address class imbalance, feature scaling, and optimal feature selection.Developed and fine-tuned diverse machine learning models, including K-Nearest Neighbors, regularized logistic regression variants, and ensemble methods such as XGBoost.Explored Azure AutoML Studio independently to automate model training and selection, enhancing efficiency and model performance.Conducted model performance analysis using ROC-AUC curves, cross-validation techniques, and statistical significance testing to validate improvements.

PROJECTS

- N-Body Problems - Astrophysics and Celestial Mechanics Simulation**
 - Derived analytical solutions for specific configurations of the N-Body Problem.
 - Implemented numerical simulations using adaptive step-size 4th order Runge-Kutta methods on MATLAB.
 - Conducted validation of simulations through comparison with analytical solutions and established benchmarks.
 - Performed comprehensive error analysis to assess numerical stability and long-term evolution of simulated systems.
 - Optimized computational efficiency through parallelization techniques and algorithm refinement.
 - Investigated and visualized planetary phenomena, including gravitational resonances, chaotic orbits.
- Participation in the 25th edition (2023/2024) of the Sup Galilée Enterprises Forum to present my major, Applied Mathematics.**
- Solving the 1D Viscous Burgers' Equation through Deep Learning techniques**
 - Investigated the application of state-of-the-art supervised/unsupervised deep learning paradigms to physical systems.
 - Implemented and compared mesh-based and mesh-free deep learning architectures for solving nonlinear PDEs (e.g., PINNs).
 - Engineered custom neural network architectures across diverse boundary & initial conditions.
 - Developed a data generation pipeline using numerical schemes to create training datasets for supervised learning models.
 - Evaluating the performance of the models and exploring improvements through fine-tuning.
 - Comparing the performance of DL with traditional numerical solutions of the equation (FDM, FEM, FVM).

SKILLS & TOOLS

Software	C / Python / R / Git / SQL / Matlab / Cuda / Docker / Azure SDK Power BI / Azure / AWS (ML & analytics services)
Technical skills	<ul style="list-style-type: none">Numerical analysis Expertise in solving linear and non-linear systems with various methods. Proficient in stability, convergence, error analysis, and performance benchmarking, including parallel computing with CUDA.Partial differential equations In-depth theoretical knowledge and practical application of numerical methods such as Finite Difference Method (FDM), Finite Element Method (FEM), and Finite Volume Method (FVM).Stochastic processes and probability theory Advanced understanding of stochastic modeling and probability theory.Optimization Proficient in diverse optimization algorithms, especially methods applicable to machine learning.Statistics Proficient in statistical computing, multivariate analysis, inferential statistics, and statistical learning theory.Data analysis Extensive experience in data manipulation, transformation, and advanced statistical analysis using Pandas, Numpy and other data analysis libraries. (e.g., Seaborn, Matplotlib, etc...).Machine learning / Deep Learning / AI Extensive experience in designing and implementing machine learning algorithms (Scikit-learn), with strong proficiency in neural networks using PyTorch. Intermediate level in NLP and computer vision, with familiarity in leveraging tools like Hugging Face for model development and deployment.MLOps / DevOps Implementation of MLOps practices for deploying and operationalizing machine learning solutions; creation and management of Azure Machine Learning (AML) workspaces, configuring settings, managing datasets, and registering datastores; selection of appropriate compute resources for model training and creation of compute targets; use of Azure Databricks for collaborative model development and linking workspaces to AML for integrated workflows; automation of workflows through AML pipelines; integration of CI/CD processes via Azure DevOps for triggering pipelines and automating model training; monitoring model performance and managing data drift.
Languages	English : Bilingual, French : Bilingual, Arabic : Bilingual

ONLINE COURSES / CERTIFICATES

- Microsoft Azure Data Scientist Associate (DP-100) Exam Prep Professional Certificate (Microsoft , Coursera)
- MLOps | Machine Learning Operations Specialization (Duke , Coursera) in progress
- AWS Cloud Solutions Architect Professional Certificate (AWS , Coursera) in progress

HOBBIES & INTERESTS

Chess, Motorsports, AI, Swimming