

Mohamed Tnani

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Education

Ecole Polytechnique, Palaiseau, France 2023-Present
- Second-year student specializing in statistics and applied mathematics, aiming for a specialized Master's degree in Market Finance (**Master el Karoui**).

Esprit Prépa, Aryanah, Tunisia 2021-2023
- Preparatory classes for top French engineering schools. Mathematics and Physics track.

Professional Experience

Association le Valdocco, France 2023-2024
- Organization of tutoring sessions and events, strengthening communication and adaptability skills.
- Educational support in collaboration with a specialized team to assist children in difficulty.

Projects

Statistical Study of Two Types of Stochastic Volatility (GARCH/Heston) 2024-2025
- Estimation of model parameters using historical data on CAC40 stocks.
- Evaluation of the estimation through statistical tests (AIC, BIC Tests) and stationarity conditions.
- Handling historical databases downloaded from Investing.com.
- Comparison of GARCH(1,1) and Heston volatility models.

Modeling of Synaptic Plasticity in Neural Networks 2024-Present
- Modeling synaptic noise using stochastic equations.
- Application of statistical tests for model analysis (JB Test, Ljung-Box Test, Anderson Test).

Crowd Evacuation Optimization Project 2022-2023
- Modeling evacuation scenarios and analyzing input variables using Monte Carlo methods.
- Application of optimization techniques (Gradient Descent, Lagrangian Method) and database management (with Numpy, Pandas).

Certificats

Finance and Quantitative Modeling - University of Pennsylvania (online) 2024
- Gaining a strong foundation in market finance (Black-Scholes, Greeks, Hedging, Exotic Options, Autocalls, long/short positions).
- Developing financial modeling skills with Monte Carlo simulations, and risk assessment.

Languages and Other Skills

Languages: Arabic/French (Bilingual), English (Fluent), German (Beginner, A2).

Programming Languages: Python, SQL, Java.

Sports: Member of the École Polytechnique Football Team.

Achievements: Ranked 3rd in a national competition in Mathematical Games.