Mehdi Ghrabli,PhD Student

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EDUCATION

2023 – · · · · **PhD** Remaining useful life estimation of power electronic modules using physics informed machine learning, ENS Paris-Saclay

2021 – 2022 **Master 2** MVA (Mathématiques, vision, apprentissage), ENS Paris-Saclay

2019 – 2022 **Engineering degree** Applied mathematics, ENSTA Paris

2017 – 2019 **Preparatory class** Mathematics and physics, Institut préparatoire aux études d'ingénieurs Tunis (IPEIT)

PROJECTS

2023 **Deep reinforcement learning** Algorithmic trading based on a risk-return deep reinforcement learning algorithm

2022 **Computational Statistics** Application of the adaptive Metropolis Langevin algorithm with truncated drift

Algorithms for speech and natural language processing Language emergence in neural agents

2021 **Bayesian filter and particular approximation** Visual pursuit using feature extractors

Deep reinforcement Learning Solving hard exploration problems : solving a maze navigation problem of computer vision guided robot

PROFESSIONAL EXPERIENCE

2022 **Research internship** Data-Driven quantization of neural networks, Datakalab

2021 **Research internship** Statistical modeling for Cross platform audience estimation, Institut louis bachelier

Freelance Practice Question Writer, Study.com

RESEARCH PUBLICATIONS

Journal Articles

1 Ghrabli, M., Bouarroudj, M., Chamoin, L., & Aldea, E. (2025). Physics-informed markov chains for remaining useful life prediction of wire bonds in power electronic modules. *Microelectronics Reliability*, *167*, 115644. doi:https://doi.org/10.1016/j.microrel.2025.115644

Conference Proceedings

1 Ghrabli, M., Bouarroudj, M., Chamoin, L., & Aldea, E. (2024). Hybrid modeling for remaining useful life prediction in power module prognosis. In *2024 25th international conference on thermal, mechanical and multi-physics simulation and experiments in microelectronics and microsystems (eurosime)* (pp. 1–9). doi:10.1109/EuroSimE60745.2024.10491493

TALKS

2025 **Combining machine learning with finite element simulations for fast computation in power module failure Analysis due to wire bond degradation** Arts et Métiers – ENSAM (Paris Campus), Paris, France

2024 **Physics-informed Markov chains for remaining useful life prediction of wire bonds in power electronic modules** Paganini Conference Center, Parma, Italy

Estimating the remaining useful life of power electronic modules using aging tests ENS Paris-Saclay, Gif-sur-Yvette, France

Hybrid modeling for remaining useful life prediction in power module prognosis Four Points by Sheraton Catania Hotel & Conference Center, Aci Castello, Catania, Italy

Skills

Programming	Python, C++, C, R, MatLab
ML/IA	Pytorch, TensorFlow, Keras, Pandas
Miscellaneous	MySQL, Git, Julia

Activities and training

2022 **Competitive programming** Ranked 34/97 in the competitive programming competition SWERC (South Western Europe Regional Contest)

2016 **Maths and logic** Top 20 in the Tunisian national exam of mathematics and participation in the training course organized by the Tunisian association of mathematics (ATSM)

Languages

Arabic	Native
English	Bilingual proficiency: 985/990 TOEIC score
French	Professional working proficiency
German	Elementary proficiency

HOBBIES

Maths and logic, Competitive programming, Sports, Music