

Ilyas Modni

PhD Candidate in Artificial Intelligence & Decision Tree Optimization

♥ Rabat, Morocco | 🇲🇦 Citizenship: Moroccan

✉ i.modni@research.emi.ac.ma

🆔 0009-0002-9498-8963 | 🔗 linkedin.com/in/ilyas-modni | 🌐 modniilyas.github.io

Research Interests

Machine Learning, Optimization, Decision Trees & Tree-based Methods, Explainable AI (XAI), Large Language Models (LLMs), Road Safety Analysis.

Education

- **Mohammadia School of Engineering (EMI)** Rabat, Morocco
Ph.D. Student in Artificial Intelligence & Decision Tree Optimization Since 2023
 - **Advisor:** Prof. Abdelaziz Berrado
 - **Thesis Focus:** Design and Development of an Intelligent System for Road Safety Data Valorization.
- **Faculty of Science Ben M'sik (FSBM)** Casablanca, Morocco
Master's in Data Science and Big Data (Graduated with Honors) 2023
- **Faculty of Science Ben M'sik (FSBM)** Casablanca, Morocco
Bachelor's in Mathematics and Informatics Sciences (Graduated with Honors) 2021

Experience

- **Manageering Inc.** Waterloo, Ontario (Remote)
Data Analyst & Market Research Team Member Nov. 2022 – Mar. 2025
 - Collaborated with a cross-functional team on a research project creating a Moroccan platform for smart home security.
 - Utilized BI & Data Analyst techniques to analyze the smart home security market, user behavior, and preferences.
- **Leoni Wiring Systems** Berrchid, Morocco
Data Scientist Intern Feb. 2023 – Aug. 2023
 - Designed and implemented dynamic KPI visualizations using BI tools and a standalone application to support real-time decision-making.
 - Applied advanced predictive algorithms to forecast KPI trends, enabling proactive business strategies.
 - Built a robust data pipeline to consolidate and centralize data for streamlined analysis.
- **Faculty of Science Ben M'sik (FSBM)** Casablanca, Morocco
Research Project Lead 2023
 - **Class Attendance Management System:** Created an innovative solution automating classroom attendance tracking utilizing facial recognition to identify and record student presence.

Publications

- [SITA 2025] I. Modni, et al. "Current Machine Learning Applications in Road Safety Monitoring: A Comprehensive Review." *The 15th International Conference on Intelligent Systems: Theories and Applications*. (In press, Oct 2025).
- [IEOM 2025] I. Modni, et al. "An Overview of the Limitations of Traditional Greedy Tree-Based Methods." *International Conference on Industrial Engineering and Operations Management*. Abstract & Presentation. DOI: 10.46254/af6.20250145. (Apr 2025).

- [GOL 2026] I. Modni, et al. “Towards Improved Decision Tree Interpretability via Large Language Models: A Case Study in Motorcycle Accident Severity.” *The 8th International Conference on Logistics Operations Management*. (In submission).
- [Accident Analysis & Prevention Journal] I. Modni, et al. “Actionable Predictive Analytics for Informed Road Safety Decisions: Case of Motorcycle Accidents in Morocco.” *Accident Analysis & Prevention Journal*. (In submission).

Fellowships, Honors & Awards

- **PhD-Associate Scholarship (PASS) – Excellence Grant** Rabat, Morocco
Co-funded by the Ministry of Higher Education, Scientific Research and Innovation & CNRST Since 2023
- **Ma Thèse en 180 secondes (MT180)** Rabat, Morocco
University Finalist (Representative of EMI at Mohammed V University) May 2025

Selected Presentations

- **AI For Road Safety Workshop** Rabat, Morocco
Presenter: “Actionable Predictive Analytics for Informed Road Safety Decisions” (EMI) Nov 2025
- **2024 Inaugural Conference for Manageering University Startups** Casablanca, Morocco
Presenter: “DomotiCool: AI-powered smart devices platform” (UH2C) July 2024
- **International Conference on Optimization and Learning (OLA 2024)** Dubrovnik, Croatia
Presenter: “Machine Learning Applications in Road Safety: A Comprehensive Review” May 2024

Schools, Workshops & Certifications

Winter/Summer & Spring Schools

- **Responsible ML Winter School**, *Umeå University, Sweden* Mar 2025
- **Winter School: Next-Gen AI & Economic Applications**, *UM6P, Benguerir* Feb 2025
- **Spring School: Multimodal Foundation Models & GenAI**, *INPT, Rabat* Apr 2024
- **Winter School on Innovation and Valorization**, *Unite and Inovalo360 (Remote)* Jan 2024

Workshops & Seminars

- **AI Technologies in Public Service: Needs and Challenges**, *Umeå University (Remote)* Apr 2025
- **IEOM Workshop (Six Sigma & Innovation and Entrepreneurship)**, *INPT, Rabat* Apr 2025
- **Wolfram Training: Mathematica & System Modeler**, *EMI, Rabat* Apr 2024
- **Workshop: "Initiation to Research: Academic Tools"**, *EMI, Rabat* Apr 2024
- **International Seminar: National Road Safety Strategies**, *Conrad Arzana, Rabat* Feb 2024

Technical Skills

- **AI & Machine Learning:** Deep Learning, Advanced Decision Trees, Explainable AI (XAI), AutoML, Time Series Forecasting, Large Language Models (LLMs), Prompt Engineering.
- **Programming & Data:** Python, SQL, Pandas, NumPy, Matplotlib, Seaborn, Plotly, Dash, R.
- **Big Data & Tools:** Apache Hadoop, Hive, NiFi, MongoDB, HBase, MySQL.
- **Web & BI:** React, Flask, Power BI, Tableau.
- **Dev Environments:** Google Colab, Jupyter, VS Code, RStudio, Git/GitHub.
- **Operating Systems:** Linux, MacOS, Windows.
- **Research:** L^AT_EX, Zotero, Elicit, ResearchRabbit.

Languages

Arabic (Native), French (Advanced), English (Intermediate).