Imen Habibi

Advanced Technologies Engineer

Address: Tunis, Tunisia
Phone: (+216) 92-909-081
E-mail: imen.habibi@enstab.ucar.tn
GitHub: https://github.com/imenhbibi
LinkedIn: https://www.linkedin.com/in/habibi-imen-8b78b2216/

RESEARCH INTERESTS

My research interests focus on leveraging advanced AI and deep learning techniques for embedded systems and autonomous systems. I have a strong passion for solving real-world challenges using reinforcement learning and IoT. I aim to apply machine learning techniques to contribute to sustainability and innovation.

Key words: Machine Learning, Deep Learning, Reinforcement Learning, IoT, Data Science, Robotics.

EDUCATION

Engineering Degree in Advanced Technologies Engineering *2021 - 2024*
National School of Advanced Technologies of Borj Cedria (ENSTAB), Tunisia

Pre-Engineering Studies in Chemistry and Physics 2019 - 2021
Preparatory Institute of Engineering Studies of Tunis (IPEIT), Tunisia

Baccalaureate Degree in Science 2015 - 2019
Medjez el Beb High School, Tunisia

PUBLICATIONS

- Habibi, I., Chammakhi Msadaa, I., & Grayaa, K. (2025). "Adaptive UAV Inspection of PV Panels Using Goal-Conditioned Reinforcement Learning and Zigzag Coverage Planning." *Deep Learning Indaba 2025 Conference*, Kigali, Rwanda.
- Poster presented: "Dynamic UAV PV Inspection Using LLM + RL and DL-Based Anomaly Detection," Habibi, I., Chammakhi Msadaa, I., & Grayaa, K. — *IndabaX Tunisia 2025.*
- Poster presented: Imen Habibi, Chammakhi Msadaa, I., & Grayaa, K., "Anomaly Detection in Photovoltaic Solar Panels Using Deep Learning and Drone-based Imaging." *Deep Learning Indaba 2024*, Dakar, Senegal.
- Habibi, I., Chammakhi Msadaa, I., & Grayaa, K. (2024). "Exploring Drone-Based Inspection for Detecting Anomalies in PV using Darknet and Image Colorization." *ACS/IEEE 21st Int. Conf. Comput. Syst. Appl. (AICCSA 2024)*, Tunisia.

PROFESSIONAL EXPERIENCE

End-of-Year Internship: Drone-Based Inspection System Feb 2024 - Sep 2024
University of Waterloo, Canada & LaRINa, Tunisia

· Developed a UAV-based system for industrial inspections, focusing on path planning, anomaly detection, and deep learning.

Data Science and Chatbot Developer Intern Jul 2023 - Aug 2023
Progress Engineering, Tunisia

· Designed dual chatbots using NLP and Flask with neural network models for optimizing user interactions.

Data Science Internship Dec 2022
Code Clause

· Implemented machine learning algorithms for real-world applications, such as stock market prediction using Python.

Industrial Chain and IT Department Intern Jun 2022
COFICAB MED, Tunisia

· Gained hands-on experience in industrial chain operations and IT system functionalities.

ACADEMIC AND PERSONAL PROJECTS

- **Smart Irrigation System (2023)**: Implemented an IoT-based smart irrigation system using Raspberry Pi and MQTT, ensuring efficient water management.
- **Path Planning and Navigation of UAVs using Reinforcement Learning (ENSTAB, 2023)**: Simulated Q-learning-based navigation for obstacle avoidance.
- **Pointing System using Fingerprint Attendance (ENSTAB, 2023)**: Created an attendance system with SQL, Arduino, and XAMPP.
- **Multiple Disease Prediction System (2022)**: Built a machine learning web app for disease prediction.
- **Smart Parking Project (2021)**: Designed an IoT parking system using Raspberry Pi and MQTT protocols.

SKILLS

Programming Languages :	Python, C, C++, MATLAB, Java, VHDL (Verilog), LabVIEW
Design and Modeling :	CATIA, PCB, Altium
Circuit Design :	STM32, FPGA, Electronic Boards
Machine Learning and AI :	PyTorch, RL, DL
IoT and Robotics :	Raspberry Pi, Arduino, MQTT
Data Analysis :	Pandas, NumPy, Matplotlib, Seaborn
Communication Protocols :	I2C, CAN, SPI, UART

AWARDS AND DISTINCTIONS

Accepted to Deep Learning Indaba 2025 (Kigali, Rwanda) with a fully funded grant as Ideathon 2024 winner (Research Track Team Award).

2nd Prize, Poster Presentation, IndabaX Tunisia 2025, Tunisia.

Poster Prize, Deep Learning Indaba 2024, Dakar, Senegal.

Selected to participate in Deep Learning Indaba 2024 (Dakar, Senegal) with a fully funded grant.

1st Place, Hack4Earth Hackathon, AICCSA 2024, Tunisia.

Fully funded MITACS scholarship, Internship at the University of Waterloo, Canada, 2024.

1st Prize, ENSTAB Problem Solving Competitions (twice), 2022–2023, Tunisia.

CERTIFICATIONS

Fundamentals of Deep Learning *NVIDIA, 2024*
Gained a solid understanding of the foundational concepts of deep learning, including neural networks and model training.

Data Visualization with Python *Coursera, 2024*
Successfully completed the course, mastering Python libraries for effective data visualization.

Certification in English for Science, Technology, Engineering, and Mathematics (STEM) *MOOC, 2023*

Natural Language Processing and Text Mining Tutorial for Beginners *Simplilearn*
Advanced IoT Solutions *Polytech Intl*

Artificial Intelligence Certification *Workshop by Polytech Intl*

Tunisian Collegiate Programming Contest *2021, 2022, 2023*

ASSOCIATIVE EXPERIENCES

Volunteer *Conference in Toronto, Canada, 2024* Met new professionals and explored various research fields during the conference.

Training Manager *ACM ENSTAB, 2021 - 2023* Organized and led technical training sessions to enhance student skills.

Active Member *ETC Junior Entreprise, 2022 - 2023* Contributed to project development and entrepreneurial initiatives.

Active Member *Electronix ENSTAB, 2021 - 2024* Participated in electronics-based projects and workshops.

Active Member *IEEE ENSTAB, 2021 - 2023* Engaged in technical events, competitions, and knowledge-sharing activities.

CP Lead *GDSC ENSTAB, 2022 - 2023* Led competitive programming activities, mentoring students in coding challenges.

LANGUAGES

English: B2
French: B2
Arabic: Native language
German: A2

HOBBIES

Reading, Cooking, and Exploring New Technologies.