Mohand Hamadouche

Ph.D. in Computer Science and Digital Architecture

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Profile

Ph.D. in Computer Science and Digital Architecture specializing in embedded systems and machine learning. Proficient in innovative solutions and advanced analytical methodologies. Committed to shaping the future of digital engineering through cutting-edge tools and platforms.

Areas of Expertise

Embedded Systems - Machine Learning - Digital Engineering - Innovative Solutions - Advanced Analytical Methodologies (Data analysis - Simulation and Stochastic Models - Probability and statistics)

Professional Experience

Ph. D. in Computer Science and Digital Architecture, *(UBO)* **Brest, FR** *10/2019 - 02/2024*

- Thesis title: Distributed Decision-Making in Multi-UAV Systems: Exploring Methods, Rewards Tuning, and Operating Mode Adaptation.

Teaching and Research Associate (ATER), *(UBO)* **Brest, FR** *10/2023 - Present*

- Embedded AI (Master 2 - 8 hours - C / C++, SystemC),
- Application Design (L3 - 48 hours - Java 2, JavaFX, Git, JUnit, Javadoc, Checkstyle),
- Object-oriented Design Project (L2 - 72 hours - Python),
- Client-side Web development (L2 - 8 hours - HTML/CSS, Javascript, XML),
- Fundamental Algorithms, Graphs, and Testing (L2 - 16 hours - C),
- Algorithmics and programming (L1 - 72 hours - Java).

Research Internship, *(ICMC - USP)* **São Carlos, BR** *06/2022 - 08/2022*

- Study of several drone mission simulators.
- Implementation of an autonomous drone mission to demonstrate the effectiveness of the "Self-adaptation method of drones in collaborative missions" described in the paper "Online reward adaptation for MDP-based distributed missions".

Embedded System Intern, *(Lab-STICC)* **Lorient, FR** *02/2019 - 07/2019*

- Development of a SLAM system (self-locating and mapping) and an autonomous navigation system for a marine drone using the stereo vision provided by two cameras on the drone.

Embedded System Intern, *(Lab-STICC)* **Lorient, FR** *04/2018 - 06/2018*

- Implementation, acquisition, and fusion of sensor data,
- Exploitation and integration of sensor data in ArduPilot for landing.

Web Developer, *(Diabetes Association)* **Tizi Ouzou , DZ** *04/2016 - 06/2016*

- Undertaking the design and execution of an application tailored for the meticulous management of association members and activities,
- Architecting a sophisticated database infrastructure and seamlessly integrating data from diverse repositories to facilitate holistic management of member profiles and association events.

Education

Ph. D. in Computer Science and Digital Architecture *University of Western Brittany* **Brest, FR** *2019-2024*
Master 2 in Embedded Systems *University of South Brittany* **Brest, FR** *2017-2019*
BSc Computer Science *Université Mouloud Mammeri* **Tizi Ouzou, DZ** *2013-2016*

Online Courses & Certifications

- Introduction to Agile Development and Scrum (May. 2024) - Coursera by IBM
- Getting Started with Git and GitHub (May. 2024) - Coursera by IBM
- Introduction to DevOps (May. 2024) - Coursera by IBM

Skills

- **Data Science:** Machine Learning, Data analysis, Simulation and Stochastic Models, Probability and statistics, Python (Skitlearn, numpy, matplotib, pandas).
- **Programming Languages:** C, C++ OOP, Python, Java, Shell Linux, Matlab, ROS, Image Processing in OpenCV.
- **Frontend Web Development:** HTML, CSS, Bootstrap, Javascript.
- **Project Management:** Gantt, MSProject.
- **Version Management:** Git, GitHab and GitLab.
- **Methodology:** Agile - Scrum and Sprints.
- **Script:** Bash / Powershell, Cmake, Makefile.
- **Document Preparation System:** LaTeX, TikZ.

Supervision of Master 2 student projects:

- Implementation of the LeNet convolution neural network on FPGA.
- Study of Reinforcement Learning with Deep Q-Learning.
- Study of Reinforcement Learning with Q-Learning on distributed systems.
- Simulation of a flying drone mission on CoppeliaSim.

Languages

- **English** [Advanced]
- **French** [Fluent]
- **Arabic** [Fluent]
- **Berber** [Native]