Smail Ait Bouhsain

AI Research Scientist, PhD

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Professional summary

PhD in AI and Robotics from LAAS-CNRS, with 6 publications in top-tier conferences (ICLR, ICRA, IROS) and real-world R&D experience at Logitech and OCP Group, I have proven expertise in Machine Learning/Deep Learning, embodied AI, and multi-agent systems, as well as a strong background in Python, C/C++ and Pytorch.

Core Skills

- **Programming:** Python, C/C++, PyTorch, Scikit-learn, OpenCV, Pandas, NumPy, Docker, Git, Jupyter
- **AI & ML:** Predictive Models, Generative Models, Representation Learning, Multimodal Learning, Data Curation/Processing, Feature Engineering, Model Training, Experimental design, Model Evaluation
- **Robotics:** ROS, Planning, Perception, Control, Manipulation, Sim2Real, Reinforcement Learning
- **Soft Skills:** Communication, Teamwork, Public Speaking, Project Management
- **Languages:** English (C1), French (C1), Arabic (C1), Spanish (A2)

Education

National Center for Scientific Research (LAAS-CNRS), PhD in Computer Science **Oct 2021 – Apr 2025**

- **Thesis:** Deep Learning Methods for Multi-Robot Task and Motion Planning
- Jury praised originality and real-world impact; recommended for European PhD prize.
- 5 papers in ICLR, ECAI, ICRA, IROS; Proposed and supervised 6-month internship; Taught ML at INSA.

Swiss Federal Institute of Technology (EPFL), MSc in Robotics (GPA: 5.2/6) **Sept 2018 – Mar 2021**

- **Major:** Intelligent Systems, ML and Robotics | **Minor:** Management of Technology

Swiss Federal Institute of Technology (EPFL), BSc in Micro-Engineering **Sept 2014 – Aug 2018**

Experience

Machine Learning Engineer, Logitech, Lausanne, Switzerland **Sept 2020 – Mar 2021**

- Developed multimodal deep learning models for emotion recognition in streamers; achieved +6% over SOTA.
- Improved model performance by 14% via multimodality fusion (Video, Audio, Physiological signals).

Robotics Engineer, OCP Group, Ben Guerir, Morocco **Mar 2020 – Aug 2020**

- Designed a high-fidelity autonomous mining truck simulation in ROS during COVID-19 shutdown.
- Developed kinematically constrained trajectory planning (Hybrid A*) and path tracking (NMPC) algorithms.
- Coordinated with data science, cartograhy, technical and sales teams (20+ collaborators).

Deep Learning Researcher, VITA-Lab EPFL, Lausanne, Suisse **Sept 2019 – Feb 2020**

- Proposed a deep model for pedestrian future positions and intentions prediction for Autnonomous vehicles.
- Outperformed state-of the art by 4%; Work published in the hEART 2020 conference.

Selected Publications

- **ICLR 2025** – Graph Neural Network-Based Geometric Reasoning for Robot Task and Motion Planning
- **IROS 2024** – Generalizing CNN-Based Feasibility Prediction to Multi-Robot Manipulation of Complex Objects
- **ECAI 2024** – Recurrent-Neural Networks for Uncertainty Prediction in Robust Motion Planning
- **IROS 2023** – Multi-task Convolutional Neural Networks for Joint Action and Grasp Feasibility Prediction