Ismael MONGE

Seeking a 6-months internship starting on 02/03/2026

CONTACT

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LANGUAGES

Spanish & French, Bilingual
English, C1
German & Italian, A1

COMPUTING SKILLS

Progamming:
C / Java / Python /
C++ / VHDL

Software:
MATLAB / Github / Octave /
LTSpice / Stäubli Robotics Suite

Operating Systems:
Linux / Window /
macOS / ROS-ROS2

Embedded Systems:
NVIDIA Jetson Xavier / Arduino
/ Raspberry Pi / STM32F4

TECHNICAL SKILLS

Robotics:
- **Mobile Robotics:** SLAM, autonomous navigation, motion planning, localization and navigation systems.
- **Kinematic modeling:** Forward/inverse kinematics for serial manipulators, trajectory planning, Jacobian computation and singularity analysis, visual tracking and pose estimation.
- **Robot Operating Systems:** Middleware integration, system architecture, node development, package management.

AI & Perception Systems:
- **Machine Learning:** Deep learning architecture (CNN, RNN), reinforcement learning, pattern recognition, decision-making algorithms (TensorFlow, PyTorch).
- **Computer Vision:** 3D perception, object detection and recognition, stereo vision, image processing and segmentation (OpenCV).
- **Speech Processing:** Conversational AI systems, automatic speech recognition, natural language understanding, dialogue management.

EDUCATION

Master's degree in Robotic and AI/ML   **2023-2026**
University of Toulouse
- **Robotics:** ROS/ROS2, SLAM, Sensor fusion, System optimization
- **Interaction:** Human-robot interfaces, Multimodal systems, Conversational AI

Bachelor's Degree in Electronics, Electrical Energy, and Automation   **Finished in 2023**
University of Toulouse

EXPERIENCE

Technical Project Manager - Formula Student   **2024-Present**
- **Led a 30-student engineering team** organized into 5 specialized technical divisions, implementing **Scrum methodology** with dedicated scrum masters for each division by managing agile development framework.
- **Selected** by ISAE Supaero's Formula Student team to represent Toulouse in an international competition to develop a **fully autonomous racing car**, focusing on achieving full vehicle autonomy at both low and high speeds, with real-time adaptation to weather conditions.

R&D intern at Kepar Electronics   **04/2025-08/2025**
- **Computer Vision Quality Control:** Designed computer vision solutions for quality control, including PCB placement verification (GBP_Simu in my Github) and deployed an embedded image classification model on NXP i.MX 8M Plus platform (Embedded_AI on imonge.es).
- **Automated production:** Increased production throughput by 50% through automated container depalletizing, with robot operating at only 30% speed capacity, indicating significant scalability potential. (Collaborative depalletizing robot in my portfolio)

Ski Instructor   **2018-2024**
- Developed clear communication skills to instruct students with different attention spans.
- Strengthened my leadership by managing group lessons with students of diverse personalities.
- Enhanced problem-solving by addressing challenges and providing support based on each student's mentality and skills.

PROJECTS

AI assistant for robotic calculations (PatotIA on imonge.es)   **2024-2025**
- Fine-tuned a CodeT5 LLM model to understand the commands sent by the user to determine its linear, angular and joint velocities, as well as planning its circular trajectory. It also implements 3D simulations of the robot's possible configurations.
- Achieved 92.94% accuracy in command interpretation with an over-500-sentence dataset.

Robot trajectory and speed planning (DigiTwin on imonge.es) – Top 1 of promotion   **2024-2025**
- Led a 4-person team to develop a kinematic model of an RRR robotic arm, calculating its linear, angular and joint velocities, as well as planning its circular trajectory.
- Implemented 3D visualizations and movement animation to represent its configuration in real-time, allowing an interactive and precise simulation of its performance.

Autonomous Mobile Robot (MobotSim & Mobot on imonge.es) – Top 1 of promotion   **2023-2024**
- Managed a 4-person team by structuring the plan and managing internal communications for task distribution while also serving as the primary point of contact with the client.
- Designed a 4-wheel mobile robot capable of scanning a room, receiving and executing voice commands, autonomous navigation without hitting walls, and detecting and differentiating obstacles.
- Achieved over 95% voice command recognition and execution accuracy.