

David Morilla Cabello

Curriculum Vitae

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Current position: *PhD Candidate, RoPeRT group, University of Zaragoza, Spain.*

Research interests: perception, planning and coordination in robot teams

Education

2021–Currently

PhD Candidate, University of Zaragoza, Spain.

Funded by a 4-year competitive grant from the Spanish Government (FPU).

Topic: *Active Perception in Robot Teams for Semantic Scene Reconstruction.*

Supervisor: *Eduardo Montijano*

2020–2022

Master in Robotics, Graphics and Computer Vision, University of Zaragoza, Spain, GPA – 9.69/10.

○ Master's thesis: *Multi-robot active perception for fast and efficient scene reconstruction.*

2015–2020

Bachelor of Electronics, Robotics and Mechatronics Engineering, University of Malaga, Spain, GPA – 8.67/10.

○ Bachelor's thesis: Vision-based control for industrial robots.

○ 9 months Erasmus program at the *University of Skövde*, Sweden. Obtained a Bachelor of Industrial Engineering by transferring previous courses from the University of Malaga.

Experience

Research

9/2023–12/2023

PhD Research Stay, UNIVERSITY OF BONN,

Decision-Making for Autonomous Robots (DMAR), Supervisor: Marija Popovic.

Accepted paper in ICRA 2024 and ongoing work.

9/2021–2/2022

Invited Visiting Student, ETH ZÜRICH,

Vision for Robotics Lab (V4RL), D-MAVT. Supervisor: Margarita Chli.

MSc Thesis resulting in an IEEE RAL 2022 Publication.

7/2021–8/2021

Robotics Student Fellowship, ETH ZÜRICH,

Vision for Robotics Lab (V4RL), D-MAVT. Supervisor: Margarita Chli.

Competitive scholarship: < 7% acceptance *Collaborative Elevation Mapping with Depth Completion on drones.*

3/2021–6/2021

Research Internship, UNIVERSITY OF ZARAGOZA,

Robotics, Perception and Real-Time group, RoPeRT.

Study of multi-modal photo-realistic simulators for multi-robot systems.

10/2019–8/2020

Research Collaboration Scholarship, UNIVERSITY OF MÁLAGA,

Systems Engineering and Automation department, ISA.

Calibration of RGB-Thermal camera and implementation of a monocular depth estimation NN on a search-and-rescue vehicle.

Work

6/2019–3/2020 **Programmer and automation engineer**, SIMUMATIK AB, Skövde, Sweden.
Participate in the development of a Virtual Commissioning tool to create Digital Twins.

- **Mobile App development in Flutter.**
Let's talk: app for conversational engagement.
Keep in Touch: app for periodic contact reminder.

Skills: photography, video, editing, communication.

Publications

- David Morilla-Cabello, Eduardo Montijano "Semantic pySLAM: Unifying semantic mapping approaches under the same framework" presented in *Robotics Science & Systems, 1st Workshop on Unifying SLAM*, June. 2025
- Ali Tourani, Saad Ejaz, Hriday Bavle, David Morilla-Cabello, Jose Luis Sanchez-Lopez, Holger Voos "vS-Graphs: Integrating Visual SLAM and Situational Graphs through Multi-level Scene Understanding," planned submission to *IEEE Robotics and Automation Letters (RAL)*, March. 2025
- Fernando Peña*, David Morilla-Cabello*, Toon Goedemé, Eduardo Montijano, Darío Suárez, Ana C. Murillo "Informed Client Selection Strategies for Federated Semantic Segmentation," planned submission to *IEEE Robotics and Automation Letters (RAL)*, March. 2025
- J. Rückin, D. Morilla-Cabello, Cyrill Stachniss, E. Montijano, M. Popovic "Towards Map-Agnostic Policies for Adaptive Informative Path Planning," submitted to *IEEE Robotics and Automation Letters (RAL)*, Nov. 2024
- D. Morilla-Cabello, J. Westheider, M. Popovic, E. Montijano, "Perceptual Factors for Environmental Modeling in Robotic Active Perception," in *IEEE International Conference on Robotics and Automation (ICRA)*, May. 2024
- D. Morilla-Cabello, L. Mur-Labadia, R. Martinez-Cantin, E. Montijano, "Robust Fusion for Bayesian Semantic Mapping," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Oct. 2023
- D. Morilla-Cabello, L. Bartolomei, L. Teixeira, E. Montijano and M. Chli, "Sweep-Your-Map: Efficient Coverage Planning for Aerial Teams in Large-Scale Environments," in *IEEE Robotics and Automation Letters (RAL)*, vol. 7, no. 4, pp. 10810-10817, Oct. 2022
- J. Morales, R. Vázquez-Martín, A. Mandow, D. Morilla-Cabello, & A. García-Cerezo "The UMA-SAR Dataset: Multimodal data collection from a ground vehicle during outdoor disaster response training exercises." *The International Journal of Robotics Research (IJRR)*, 40(6-7), 835-847. Oct 2021

Courses

2-4/2020 Nvidia DLI courses: "Fundamentals of Accelerated Computing with CUDA C/C++ and Python", "Fundamentals of Deep Learning for Computer Vision", and "High-Performance Computing with Containers".

Computer skills

Languages Python, C/C++, CUDA, C#, Dart, Web.
Frameworks ROS, Pytorch, Airsim, Unreal, Unity3D.

Programming VS Code, GitHub, Docker.