David OLIVARES

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Education

PhD. candidate — **Paris-Saclay University — ONERA — Akkodis Research** — 2022 – 2025
Learning-Based Control of a Fixed-Wing UAV (FW-UAV) Under Wind Disturbances

- Investigation of Reinforcement Learning (RL) based techniques for developing autopilot systems
- Results on Model-Free RL (PPO/SAC) vs Model-Based RL (TDMPC2) algorithms for attitude control of a FW-UAV under wind disturbances.
- Extended this work to the waypoint tracking task, unveiling TDMPC2's greater potential for tracking hard waypoints requiring complex acrobatic maneuvers and robust to gusts of wind.

Master of Science — **ECE Paris**, Computer Science — Embedded Systems Major — 2016 – 2021

- **Relevant courses**: Robotics, Reinforcement Learning, Linux Kernel Programming, Data Structures & Algorithms...

Abroad Semester — **Ajou University**, South Korea — Software Engineering Dept. — Sept – Dec 2018

- **Relevant courses**: System Programming (GNU/Linux Ubuntu & Raspberry Pi), Data Structures, Operating Systems, Korean

Professional Experience

Akkodis Research, Paris Area — Research Engineer — Jan 2025 – Present

- Autonomous Driving Systems project, working on the navigation stack of an autonomous car (Kia Niro).
- Development of control algorithms and testing on a simulated digital twin in the CARLA simulator.
- Tools: ROS2, Carla, C++.

Akkodis Research, Toulouse — Robotics Engineer — Sept 2021 – Sept 2022

- Gearbodies European Project. Holonomic wheeled robot for non-destructive inspection of composite material made train carbodies.
- Development of a navigation stack for the robot to be able to autonomously complete its inspection mission.
- Tools: ROS2, Gazebo, C++, Python, sensor fusion for localization and mapping (time of flight, ultrasound, 2D and 3D LiDARs).

Capgemini Engineering, Blagnac — R&D Artificial Intelligence & Robotics Engineer Intern — March 2021 – Aug 2021

- Designed and implemented Deep Reinforcement Learning models for quadrupedal locomotion of a wheeled/legged robot.
- Tools: OpenAI Gym, Stable Baselines, TensorFlow, PyBullet, Robotics.

Safran Electronics & Defense (Safran Data Systems), Les Ulis — Integration Validation Verification Engineer Intern — May 2020 – Aug 2020

- Improved an automatic benchmark for testing/validating airborne embedded equipment (mission recorder).
- Tested embedded software: commands, encryption, self-diagnose, and video sig-

nals.

- Tools: Ruby, military standards, video formats and communications.

Projects

Challenge UTAC-CERAM: Autonomous Vehicle Platooning, Final year project, ECE Paris Robotics Team — Sept 2020 – May 2021

Robotics French Cup, ECEBORG Robotics Club — Sept 2019 – Oct 2020

Scientific Publications

Olivares D., Fournier P., Vasishta P., Marzat J., **An Empirical Study on Temporal Difference Model Predictive Control for Fixed-Wing UAVs under Varying Wind Conditions.** Springer Nature Computer Science (2026). https://doi.org/10.1007/s42979-026-04751-w

Olivares D., Fournier P., Vasishta P., Marzat J., **Model-Free versus Model-Based Reinforcement Learning for Fixed-Wing UAV Attitude Control Under Varying Wind Conditions.** In Proceedings of the International Conference on Informatics in Control Automation and Robotics - ICINCO (2024). Best student paper runner-up. https://doi.org/10.5220/0012946600003822

Summary of Technological Skills

Programming Languages: C/C++, Python, MATLAB/Simulink.

Technologies: Embedded/Real-time Linux, Raspberry Pi, 3D Printing and Prototyping.

Libraries & Frameworks: ROS2, PyTorch, Stable Baselines, Gymnasium, JSBSim, PyBullet, OpenCV, PCL, Git.

Languages

French: Native **Spanish:** Bilingual **English:** C1 (IELTS 7.5/9, TOEIC 930/990)