

# Alejandro Fontan Villacampa

Visual SLAM Engineer



[Personal Website](#)

## About me

I'm a Visual SLAM Engineer with expertise in Computer Vision, Robotics, AR/VR, and Machine Learning. Passionate about mentorship and collaboration. My career is dedicated to exploring and shaping the future of Visual SLAM and Localization.

## Personal

Alejandro Fontan Villacampa  
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## Areas of specialization

Visual SLAM / Localization  
/ Visual Odometry / VPR

## Interests

Computer Vision • Robotics  
• AR/VR • Machine Learning

## Links

[GitHub](#)  
[LinkedIn](#)  
[Scholar](#)

@AFontanVillcmp

## SHORT RESUMÉ

2022–2025

### Research Fellow

QUEENSLAND UNIVERSITY OF TECHNOLOGY · Brisbane, Australia

At the QUT Centre for Robotics, I lead research on Visual SLAM. Recent highlights include AnyFeature-VSLAM, a flexible framework for integrating diverse feature types into SLAM pipelines, and a novel *ground-truth-free tuning* method for robust SLAM/SfM evaluation. I also supervise PhD students and mentor our research team, focusing on Visual SLAM and Localization problems. [QUT Profile](#)

2018–2022

### PhD Information-Driven Navigation - Associate Researcher

GERMAN AEROSPACE CENTER (DLR) · Munich, Germany

Pioneered *Information-driven direct rgb-d odometry* and *Semi-direct SID-SLAM* to improve visual odometry for mobile and aerial robots in planetary exploration. Deployed and evaluated on a custom DLR multicopter, contributing to its development as a research platform. [DLR Profile](#)

2017–2018

### Internship as Software Engineer

WIKITUDE GMBH · Salzburg, Austria

Developed a computer vision AR library for mobile OS like Android and iOS, focusing on implementing and testing on devices new visual-inertial SLAM algorithms, OKVIS and VINS-Mono. Created calibration solutions for phone cameras and IMUs' extrinsics. [Wikitude Webpage](#)

## LATEST PROJECTS

[Unifying-SLAM@RSS2025: Primary Organizer Workshop](#) at the 2025 Robotics: Science and Systems (RSS) Conference, L.A., USA.

[VSLAM-LAB: A Comprehensive Framework for Visual SLAM Baselines and Datasets](#).

[AnyFeature-VSLAM: Automating the Usage of Any Chosen Feature into Visual SLAM](#)

## EDUCATION

2025 [CV for Spatial Intelligence](#)  
ICVSS · Summer School



2018/22 [PhD System Engineering and Programming](#)  
UNIV. ZARAGOZA · DLR



Advisor: Dr. Javier Civera  
Co-Advisor: Dr. Rudolph Triebel

2016/17 [Master of Industrial Eng.](#)  
 EINA · Univ. Zaragoza



2011/15 [Degree in Industrial Eng.](#)  
 EINA · Univ. Zaragoza



## PUBLICATIONS

[IROS 25](#) [VSLAM-LAB: A Comprehensive Framework for Visual SLAM Methods and Datasets](#).

[Look Ma, No Ground Truth! Ground-Truth-Free Tuning of SfM and VSLAM](#).

[IROS 25](#) [Image-Based Relocalization and Alignment for Long-Term Monitoring of Dynamic Underwater Environments](#).

[RSS 24](#) [AnyFeature-VSLAM: Automating the Usage of Any Feature into Visual SLAM](#).

[ICRA 24](#) [Adaptive Outlier Thresholding for Bundle Adjust. in VSLAM](#).

[BMVC 23](#) [Motion-Bias-Free Feature-Based SLAM](#).

[RA-L 23](#) [SID-SLAM Semi-Direct Information Driven RGB-D SLAM](#).

[RA-L 22](#) [A Model for Multi-View Residual Covariances based on Perspective Deformation](#).

[ICRA 21](#) [DOT: Dynamic Object Track](#).

[JFR 21](#) [The MADMAX data set for visual-inertial rover navigation on Mars](#).

[CVPR 20](#) [Information-Driven Direct RGB-D Odometry](#).

## PROGRAMMING

[C++ / Python](#) [ROS / Matlab / LaTeX](#)  
[Anaconda / Pixi](#)

## OTHER ACTIVITIES

*IELTS Gen. Training (Score 8/9).*

*First Aid Course & CPR.*

*Professional Music Studies.*