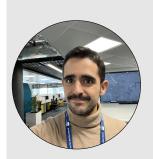# Alejandro **Fontan Villacampa**

Visual SLAM Engineer

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
fontanvillacampa@gmail.com
alejandro.fontan@qut.edu.au
+61 452 200 234

Areas of specialization

Visual SLAM / Localization / Visual Odometry / VPR

Interests

Computer Vision · Robotics · AR/VR · Machine Learning

 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, Los Angeles, USA. 🌐

📊 VSLAM-LAB: A Comprehensive Framework for Visual SLAM Baselines and Datasets. 🔗

AnyFeature-VSLAM: Automating the Usage of Any Chosen Feature into Visual SLAM 🔗

Degrees

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

Programming

| C++ / Python |
| Anaconda / Pixi |
| ROS / Matlab / LaTeX |

Publications

- 25	*VSLAM-LAB: A Comprehensive Framework for Visual SLAM Methods and Datasets.* 🔗
- 25	*Look Ma, No Ground Truth! Ground-Truth-Free Tuning of SfM and VSLAM.* 📄
- 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 Oral	*Information-Driven Direct RGB-D Odometry.* 📄▶

Other Activities

IELTS Gen. Training (Score 8/9).
First Aid Course & CPR.
Professional Music Studies.

fontanvillacampa@gmail.com ✉ alejandro.fontan@qut.edu.au ✉
QUT 📍 Brisbane, Australia 📞 +61 /452 200 234