César DEBEUNNE
PhD, Engineer | Post Doctoral Researcher

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- Current Location : Toulouse, France
- **i** Born on May 22, 1997

💼 Professional Experiences

December 2024 -	**Post Doc, ISAE-Supaero, Toulouse** Development of an hybrid estimator based on vision and GNSS
November 2021 November 2024	**PhD Thesis, ISAE-Supaero / CNES, Toulouse** › Development of a lightweight indirect Visual Inertial SLAM for spatial applications › Theoretical and practical work on marginalization and sparsification of a factor graph based SLAM › Densification of a sparse map for traversability estimation › Scale estimation for Visual SLAM with non overlapping FoV cameras Supervisor : Damien Vivet and Alex Torres
April 2021 October 2021	**Master Internship, LAAS-CNRS, Toulouse** › Contributing to a 6 DoF object pose estimator based on supervised learning : CosyPose › Programming an object based Visual Inertial (monocular camera + IMU) SLAM system : CosySLAM Supervisor : Nicolas Mansard
September 2019 April 2021	**Research Course, ISAE-Supaero, Toulouse** › Journal writing of a state of the art review (Sensors) › Programming a feature based LIDAR odometry framework on MATLAB › Programming a C++ hybridized SLAM Camera/LIDAR Supervisor : Damien Vivet
September 2020 April 2021	**Research Project, LAAS-CNRS, Toulouse** › Assembly of SOLO-12, a quadruped robot by Open Dynamic Robot Initiative › Programming a jump controller for SOLO-12 Supervisor : Thomas Flayols
September 2019 June 2019	**Mathematics oral examiner, Lycée Saliège, Toulouse** › Oral examiner for preparatory students › Classes : PCSI/PTSI Teacher : Arnaud Begyn
March 2019 August 2019	**Werkstudent, Valeo, Kronach (Germany)** › Setting a benchmark for the "trained parking" functionnality › GNSS and visual odometry data analysis › Programming a MySQL database to automatize the validation process Supervisor : Dr.Eugen Wige

🎓 Education

2021-2024	PhD in Informatics and Telecommunications ISAE-SUPAERO - Toulouse (31)
2017-2020	Engineering School ISAE-SUPAERO - Toulouse (31), major in signal processing, minor in robotics
2015-2017	Preparatory School, classes PCSI/PC, Lycée Privé Sainte Geneviève - Versailles (78)
2015	Scientific Baccalaureate, Institution Libre de Marcq-en-baroeul (59), mention "Très Bien"

☰ Competences

Programming :	**C, C++, Java**, Python, Matlab, ROS, git
Languages :	English (C1), Spanish (B1), German (A2), Chinese (A2)
Hobbies :	Cycling, Mountaineering, Guitare

📓 Publications

Journal Paper

César Debeunne, Damien Vivet. "A review of visual-LiDAR fusion based simultaneous localization and mapping". In : *Sensors.* Vol. 20, 7, 2020

César Debeunne, Alex Torres, Damien Vivet. "SaDVIO : Sparsify and Densify VIO for UGV Traversability Estimation". In : *IEEE Robotics and Automation Letters.* Vol. 9, 10, 2024

International Conference Papers

César Debeunne, Damien Vivet, Alex Torres. "Design of a bi-monocular Visual Odometry System for Lava Tubes exploration". In : *PNARUDE Workshop IEEE/RSJ International Conference on Intelligent Robots and Systems.* 2022

César Debeunne, Joan Vallvé, Alex Torres, Damien Vivet. "Fast bi-monocular Visual Odometry using Factor Graph Sparsification". In : *IEEE/RSJ International Conference on Intelligent Robots and Systems.* 2023

César Debeunne, Damien Vivet, Alex Torres. "Non-Recovering Field-of-View Imaging-Based SLAM for Lava Tubes Exploration". In : *17th Symposium on Advanced Space Technologies in Robotics and Automation.* 2023