



**Séminaire ISIR**  
Mercredi 20 juin 2018 à 10H00

**José M. M. Montiel**

Campus Jussieu, 4 place Jussieu, Paris  
**Salle 304**

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## Real Time Monocular Visual SLAM

**Abstract :** SLAM (Simultaneous Localization And Mapping) paradigm endows a system with the capacity to produce its own maps using only its onboard sensors, while the same sensor readings are used simultaneously to self-locate the system with respect to the self-built map. When video cameras are the only sensor, we refer to it as Visual SLAM (VSLAM). VSLAM systems have proven crucial for robots to achieve autonomous operation and for accurately estimating the user 3D position in AR (Augmented Reality), hence they are also relevant in computerizing MIS (Minimally Invasive Surgery) procedures.

The talk covers the visual SLAM challenges and the methods to overcome them, by means of a definite Visual SLAM system: ORBSLAM. ORBSLAM is a paradigmatic visual SLAM system, achieving top performance on the most popular benchmarks, and whose source code is publicly available under GPLv3 licence. It is able to compute, in real-time, the camera trajectory and a sparse 3D reconstruction of the scene in a wide variety of environments using commodity cameras and computers. It will be also considered the extension of ORBSLAM to deal with intracorporeal endoscopy.

Further information about the system can be reached at:

<http://webdiis.unizar.es/raulmur/orbslam/>

**Short bio :** Prof. Jose M. M. Montiel is full professor at Universidad de Zaragoza (Spain) where he shares his time between lecturing and research. His publications have appeared in major robotics/vision conferences and journals including IEEE T. Robotics, IEEE T. PAMI, and IEEE ICRA. He has several honours and awards, including the 2016 King-Sun Fu Memorial Best Paper Award, that recognizes the best paper published in 2015 in the IEEE Transactions on Robotics, for co-authoring the article describing the ORB-SLAM system.