Call for Papers

IEEE TRANSACTIONS ON ROBOTICS

Special Issue on Visual SLAM

In recent years there have been spectacular advances in the solution of the simultaneous localization and mapping (SLAM) problem for indoor environments of considerable size, and to some extent, also for outdoor environments. Many SLAM systems have been demonstrated to build large 2D models of the environment using laser scanners. A current trend in SLAM is to use standard, low-cost, compact and information-rich cameras to sense the environment rather than more specialized sensors. The focus of this Special Issue of the *IEEE Transactions on Robotics* (T-RO) is to publish outstanding results in the rapidly progressing subject of visual SLAM: visual-only systems as well as systems that accommodate available knowledge about the sensor motion provided by other sensors, including inertial, accelerometers, gyroscopes and so on. One natural major thrust of work in vision-based SLAM is to emulate (and ultimately surpass) the results in large-scale mapping achieved using laser range-finder sensors, aiming to build vision-only SLAM systems with the potential of guiding autonomous robots in their exploration and operation in large and complex environments.

Topics

Topics of interest include, but are not limited to the following:

- Visual odometry
- Dense scene representation
- Visual loop closing techniques
- Visual sub-mapping
- Bearing only/monocular SLAM
- Multi-camera configurations for SLAM
- Mapping with omni-directional cameras
- High frame-rate motion estimation
- Application to commodity platforms
- High-end applications in field robotics, humanoids, automotive

Techniques that contribute to close the gap between 'traditional' SLAM techniques and computer vision techniques will be of special interest.

Important dates:

August 1, 2007:	Call for Papers
November 30, 2007:	Deadline for Paper Submission
March 15, 2008:	Completion of First Review
June 30, 2008:	Completion of Final Review
October 2008 (tentative):	Publication

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Submission and Review of Papers:

Submission procedures can be obtained from the T-RO web site http://www.dis.uniroma1.it/ieeetro. T-RO considers also multimedia material accompanying submissions. Papers submitted to the Special Issue will undergo the usual reviewing process of T-RO.