

From the Guest Editors

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Robotics is a challenging area and many researches have been spread all over the world. This special issue comprises the best publications of Brazilian and Latin American contributions on Robotics in 2016. Only the best papers of the outstanding co-allocated symposium IEEE LARC—Latin American Robotics Conference and SBR—Brazilian Robotics Symposium were invited to submit a most new and extended version of the published versions. All papers went through a very thorough review that was coordinated by the Guest Editors. Each submission to JINT was treated as ‘new submission’ and went throughout new rules and new reviewers differed from those these paper were submitted in the original Symposium. Only high-quality versions that collaborates with robotics state-of-art and that presented no more than 30% of equivalence to the original published version were accepted. The final result is a very high-quality publication comprising the best results in Robotics from Latin America and Brazil in 2016 and cover a broad range of robotics research fields. In the paper “**Reducing the Range of Perception in Multi-Agent Patrolling Strategies**”, the authors analyzes a Multi-Agent Patrolling throughout a graph by using 0-range strategies which ranges naturally favor the design of lower-cost patrolling robots.

Controlling wheeled robots in formation is the focus of the paper “**Robust Discrete-Time Markovian Control for Wheeled Mobile Robot Formation: A Fault Tolerant Approach**” where the results highlight the effectiveness and robustness of the proposed approach based on recursive robust regulator discrete time Markovian jump linear systems. In “**Quasi-omnidirectional Fuzzy control of a climbing robot for inspection tasks**” work it is presented a novel method of control for intelligent inspection robot designed to work inside and outside spherical storage tanks ensuring the safety motion under adhesion and kinematic constraints. An improvement in robot’s kinematics control applied to a nonholonomic mobile manipulator is the main focus of the paper “**Whole-Body Kinematic Control of Nonholonomic Mobile Manipulators Using Linear Programming**”, resulting in an approach based on Linear programming that is stable, computationally efficient and let the robot to be able to control its end effector without colliding with obstacles neither violating its joints limits.

Another approach to the nonholonomic mobile manipulator by using feedback linearization and dual quaternion algebra is presented in the paper “**Whole-Body Control of a Mobile Manipulator Using Feedback Linearization and Dual Quaternion Algebra**” where the results show that this approach is promising and also capable of generating smoother movements while having lower control effort than the linear controller. The paper “**Heuristically Accelerated Reinforcement Learning by means of Case-Based Reasoning and Transfer Learning**” introduces the successful use of Heuristically Accelerated Reinforcement Learning, Case-Based Reasoning and transfer learning applied to real-robot domains in order to improve the learning rates.

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On the work “**Object Recognition and Semantic Mapping for Underwater Vehicles Using Sonar Data**”, a method that provides a semantic mapping on the underwater environment is provided by using acoustic images acquired by Forward-Looking Sonar (FLS), which is an important contribution for underwater robots. In “**Information-driven Rapidly-exploring Random Tree for Efficient Environment Exploration**”, the authors proposed a navigation strategy for efficient exploration of unknown environments by using entropy to estimate the expected gain of exploring each candidate frontier, providing faster information gain about the environment when compared to other exploration strategies. “**Dimitri: An Open-Source**

Humanoid Robot with Compliant Joints” is a paper that introduces a full body humanoid robot with very low-cost polyurethane torsional spring fixed to traditional servo motors that can absorb impacts while allows the robot to replicate movement sequences learned by demonstration.

We hope that you enjoy this special issue and that the results achieved by the accepted papers could help in your research.

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