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Quantum Engineering

A special issue of the Journal of Mechatronic Systems and Control, ACTA Press

Promoting the integration of Quantum technologies with engineering systems

Pushing the engineering boundaries beyond classical techniques.

Submission due 15 February 2020 via <https://www.editorialmanager.com/msc/default.aspx>

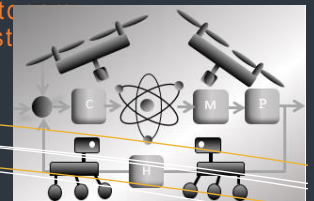
February 15, 2020 submission of the full papers.
NOTE: Please add “Quantum Engineering Special issue” as the first line of your paper.
April 15, 2020, decision.
May 15, 2020, Submission of the revised papers.
June 15, 2020, Acceptance.

Quantum Engineering Submission due 15 Feb. 2020

The special issue topics include but not limited to:

Quantum Entanglement, Generation and Distribution
Quantum Cryptography Systems
Quantum Robotics
Quantum Multi-body Dynamics
Quantum Controls and Autonomy
Quantum Computing/Computers
Quantum Communications and Networking
Quantum Games, Auctions, and Multiparty Protocols
Quantum Sensing
Quantum error correction
Quantum fault tolerance
Quantum error detection and monitoring
Quantum measurement instrumentation
Education

The First Applied Quantum Engineering publication
on experimental and theoretical quantum technologies for Robotics, Auto Controls and Autonomous Systems



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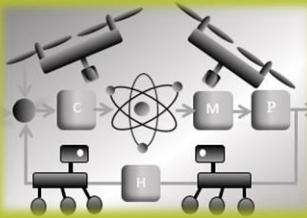
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The First Applied Quantum Engineering publication series

on experimental and theoretical quantum technologies for Robotics, Autonomy, Controls and Autonomous Systems

Quantum Engineering

A special issue of the Journal of Mechatronic Systems and Control, ACTA Press

Theoretical & Experimental Research

Integrating Quantum Technologies with Engineering Systems

Pushing the engineering boundaries beyond classical techniques.

Quantum Entanglement and Quantum Cryptography for Robotics, controls, Automation, and Autonomous Systems: Experimental and Theoretical research

The goal and introduction

The goal of the special issue is to publish the latest research and advances at the interface of Quantum Technologies and Engineering Systems.

Applications of quantum technologies in engineering systems have shown the greatest engineering advances in recent decades. By integrating the unmatched possibilities of quantum supremacy with engineering applications, such interdisciplinary quantum and engineering systems and techniques can push the engineering boundaries beyond any classical technique.

In this special issue, we aim to promote **quantum engineering** and invite the experts in engineering and physics communities to contribute their research work to support the advancement of the research area. We particularly invite the experts who are working at the **interface of the of quantum technologies for engineering applications**, including but not limited to quantum computing and quantum games for automation, control and robotics applications, as well as physicists and engineers who are advancing techniques in **experimental quantum entanglement and cryptography**, which can potentially be used in control of engineering systems.

Mechatronics promises development of engineering systems which are more efficient and compatible in multiple physical domains due to the integrated system development approach and design process. Therefore, the motivation in promoting the cross-disciplinary quantum and classical engineering system research and development is to prepare the classical technologies such as robotics, automation, controls and autonomous systems to be developed in a compatible manner with future quantum computers, when such technologies become available. When quantum computers become accessible in the next decades, the only rational and practical way for the robots and autonomous systems, equipped with quantum computers and quantum computing capabilities, is to cooperate, be controlled and communicate with **Experimental Quantum technologies** (e.g., **quantum entanglement** and **cryptography**) in a **multi-agent robotic network**. Experimental **quantum control** and communication promises to be the most logical compatible way for quantum computers (e.g. in a network of robotic or unmanned systems) to exchange information. In fact, using classical cooperative robotic techniques between quantum computers, in a robotic and autonomous network, can in fact defeat the purpose and advantage of quantum computers and their capability due to the state conversion that is needed to go from the quantum channel to the classical channel and vice versa.

