



Journal of Autonomous Vehicles and Systems

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Special Issue on Quantum Engineering for Autonomous Vehicles

The goal of this Special Issue is to publish the latest research and advances at the interface of quantum technologies and autonomous vehicles. Applications of quantum technologies have shown the greatest potential in the advancement of engineering systems in recent decades, including their computational speed-up and guaranteed security. By integrating the unmatched possibilities of quantum advantage with engineering applications, such integrated quantum and engineering systems and techniques can potentially push the current engineering boundaries beyond any classical technique.

Autonomous vehicles and systems are integrated, physical, mechatronic systems in multiple domains. Efficient and integrated multi-domain and multi-disciplinary techniques are required to enable optimized vehicle systems. One of the motivations in promoting cross-disciplinary quantum and classical engineering system research and development is to pave the way for the development of new classes of advanced autonomous vehicles and robotic systems, integrated and compatible/adaptable with emerging quantum technologies in an optimized manner. Once quantum computers become more accessible to the general engineering community, it is envisioned that robots and autonomous systems, once equipped with quantum computers and quantum computing capabilities, will require tighter cooperation, and will be expected to be controlled and communicate with appropriate corresponding quantum-enabled communication systems (e.g., using quantum entanglement, cryptography, and teleportation techniques) in highly-integrated multi-agent robotic networking scenarios. These "hybrid" classical/quantum systems may hold significant promise for the most efficient and optimized solutions in many future autonomous vehicle applications.

The Special Issue aims to promote quantum engineering for autonomous vehicles and robotics applications and invites the experts in engineering and physics communities to contribute their research to support the advancement in these related research areas. An invitation is extended to experts who are exploring the interplay between quantum technologies and autonomous vehicles and robots.

Topic Areas

Including, but not limited to:

- Applications of quantum computing
- Quantum AI (Artificial Intelligence)
- Quantum annealing
- Quantum games
- Quantum communication
- Cryptography
- Teleportation
- Network and distributed sensing, etc. which can potentially be used as enablers of novel guidance, dynamics, control, estimation, and system identification of enhanced autonomous systems

Publication Target Dates

Paper submission deadline	March 31, 2023
Initial review completed	June 15, 2023
Special Issue publication date	October 2023

Submission Instructions

Papers should be submitted electronically to the journal at journaltool.asme.org. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal** page, select the [ASME Journal of Autonomous Vehicles and Systems](#) and then select the Special Issue **Quantum Engineering for Autonomous Vehicles**.

Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue.

Guest Editors

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