Journal of Systems Engineering and Electronics
(Indexed by Science Citation Index, Engineering Index)

CALL FOR PAPERS

Special Section on Control with Virtual Tubes for Swarm Robots

Virtual tube technology is a recent swarm control approach for swarm robots. All robots share the same planned virtual tube using the same distributed controller for swam coordination. Since there are no obstacles inside the virtual tube, robots only need to guarantee no collision with each other and the tube boundary. Compared with the formation control, control with virtual tubes does not require robot IDs and a formation, which relaxes the requirements on the relative position. Compared with planning methods, virtual tube planning differs from trajectory planning, only one virtual tube needs to be planned, which reduces the computational complexity. The introduction and application of virtual tubes for swarm robots control will be intensively pursued in this special section.

Scope of Topics

This special section aims to promote and explore the deep value of Control with Virtual Tubes for Swarm Robots. The topics of interest include, but are not limited to

- Virtual tube modeling
- Virtual tube planning
- Robots swarm analysis with virtual tubes
- Distributed control with virtual tubes
- Applications of control with virtual tubes

Submission

Authors should prepare papers according to the format requirements of Journal of Systems Engineering and Electronics, with reference to the Guide for Authors given at http://www.jseepub.com, and submit the Word version of the complete manuscript through the online submission system. When submitting the paper, the title format should be "Title (Special Section on **Control with Virtual Tubes for Swarm Robots**)".

Important Dates

Manuscript Due

December 31, 2023

Final Review Notification

March 31, 2024

Possible Publication

June 30, 2024

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In order to facilitate further understanding of the topics of the special section, a series of 15 technical seminars are organized. Scan the QR code below to follow more details.

《系统工程与电子技术》

基于虚拟管道的机器人集群规划与控制专栏征稿

虚拟管道（Virtual Tube）技术是最近用于群体机器的集群控制方法。所有机器人共享相同的预先规划好的虚拟管道，使用相同的分布式控制器进行集群协调。虚拟管道内没有障碍物，机器人只需要保证个体间以及与管道边界不发生碰撞即可。与编队控制相比，虚拟管道控制不需要机器人 ID 和编队，这放宽了对于相对位置准确性的需求。与规划方法相比，虚拟管道规划不同于轨迹规划，只需规划一根虚拟管道，这极大降低了计算复杂度。

为促进该领域学术交流，推动专业创新发展，《系统工程与电子技术》（EI 收录）计划推出“基于虚拟管道的集群规划与控制”专栏。现面向该领域专家学者征集研究论文，欢迎投稿。

征稿范围

本专栏的征稿方向包括但不限于

- 虚拟管道的建模
- 虚拟管道的规划
- 虚拟管道内的机器人集群特性分析
- 基于虚拟管道的机器人集群规划和控制
- 基于虚拟管道的控制应用

投稿方式

- 请登录《系统工程与电子技术》网站（www.sys-ele.com），进入中文刊，登录作者在线投稿系统，按系统要求填写相关信息，上传稿件及保密审查证明和版权转让协议等相关文件。提交论文时，请在文章题目末尾注明该文章为专栏投稿，即文章题目格式应为“文章题目（基于虚拟管道的集群规划与控制专栏）”。
- 投稿模板及要求请参见期刊官网投稿指南。

重要节点

- 投稿截止日期：
  2023 年 12 月 31 日
- 录用通知日期
  2024 年 3 月 31 日

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《系统工程与电子技术》紧密围绕支撑航天工程、国防科技等发展的关键领域，及时报道国内外相关研究成果，推动国家科技创新，为促进国内外科技成果交流和传播，搭建了高质量学术推广平台。本刊设置电子技术，传感器与信号处理，系统工程，制导、导航与控制，通信与网络，可靠性等栏目，已被 EI、Scopus、INSPEC、JST、中文核心期刊要目总览、中国核心期刊（遴选）数据库等国内外知名数据库检索收录。更多信息详见本刊官方网站 http://www.sys-ele.com。

为方便进一步了解专栏主题，特组织 15 期系列技术研讨班。扫描下方二维码获取研讨班详细信息。