

2022 第十届中国指挥控制大会 特邀专题论坛简介

特邀专题名称

先进探测与自主识别技术

召集人的姓名、职称、单位和邮箱

邓宸伟、教授、北京理工大学、cwdeng@bit.edu.cn

特邀专题简介（背景、目的、意见和内容）

随着无人化、自主化、智能化技术的快速兴起并广泛应用，全天候、全天时、全域信息实时探测与感知在国家安全、科技发展和社会进步等方面具有重要意义。传统探测体制难以应对日趋复杂的应用环境，制约了复杂场景下高价值信息的状态感知和持续观测能力。近年来，随着研究人员对不同探测成像机理的探索以及深度学习、压缩感知、计算成像等信息处理前沿技术的深入研究，以红外-偏振、时-空-谱为代表的一系列新兴成像及联合探测技术不断发展，通过设计稳健光学信息感知系统、构建高效智能信息处理模型，可有效提升复杂环境中目标自主辨识能力，具备良好的发展前景与应用优势。为了促进学术交流和技术创新，推动先进探测体制与信息感知理论、应用、技术的发展，提高目标自主探测与识别的智能化水平以及对复杂场景的适应能力，本特邀专题邀请与“先进探测与自主识别技术”相关主题的原创论文，包括但不限于以下方向的创新思想、概念、发现以及应用。

- 计算光学成像技术
- 红外探测与成像技术
- 高光谱、多光谱、偏振探测技术
- 先进雷达探测、成像与解译技术
- 多手段多平台协同探测技术与应用
- 智能传感探测技术
- 复杂场景目标检测与识别技术
- 异源样本利用与学习
- 多模态信息融合技术

Invited Session Summary

Title of Session

Advanced Detection and Automatic Recognition Technology

Name, Salutation, Affiliation and Email of Organizers

Chenwei Deng, Professor, Beijing Institute of Technology, cwdeng@bit.edu.cn

Details of Session (background, purpose, significance and scope)

With the rapid development and wide application of unmanned, autonomous and intelligent technologies, real-time detection and perception of all-weather, all-day and global information is of great significance in national security, scientific and technological development and social progress. Traditional detection system could hardly cope with the increasingly complex application environment, which restricts the ability of state perception and continuous observation for high-value information in complex scenarios. In recent years, with the exploration of different detection imaging mechanisms and in-depth study for cutting-edge information processing technologies (e.g. deep learning, compressed sensing and computational imaging), a series of emerging algorithms represented by infrared-polarization and spatial-temporal-hyperspectral joint imaging and detecting have been proposed. By designing robust optical information perception system and constructing an efficient intelligent information processing model, such algorithms can effectively improve automatic recognition ability in complex environments, and have potential development prospects and application advantages. To this end, in order to promote academic innovation for the development of advanced detection systems and information perception theories, applications, technologies, as well as improve the intelligence level for autonomous detection and recognition ability in complex scenarios, this special invitation calls for original papers related to Advanced Detection and Automatic Recognition Technology, including but not limited to innovative ideas, concepts, discoveries and applications in the following directions:

- Computational Optics Imaging Technology
- Infrared Detection and Imaging Technology
- Hyper-spectral, Multi-spectral, Polarization Detection Technology
- Advanced Radar Detection, Imaging and Interpretation Technology
- Multi-platform Collaborative Detection Technology and Application

- Intelligent Sensor Detection Technology
- Complex Scene Target Detection and Recognition Technology
- Heterogeneous Sample Utilization and Learning
- Multimodal Information Fusion Technology