Photoelectric Intelligent Perception: From Materials and Imaging Mechanisms to Applications

Dear Colleagues,

With the rapid development of optical imaging, many kinds of intelligent perception techniques including advanced materials, 2D/3D imaging mechanisms, and related algorithms have been studied. Some techniques have been widely used in robotic vision, UAV, intelligent monitoring, biomedical engineering. However, there are still some drawbacks to be overcome before these will be suitable for practical use. The goal of this Special Issue is to focus on novel theory and techniques for imaging mechanisms, optical materials, and algorithms which can be used to improve the performance of photoelectric intelligent perception.

The field includes the following:

- Novel imaging mechanisms in 2D and 3D, such as ghost imaging , Lidar, bio-inspired vision, etc.;
- Improvements in optical materials and elements, including near-infrared detectors, liquid lenses, etc.;
- Biomedical imaging and applications, such as optical coherence tomography and image-guided interventions for microsurgery;
- Ultrasonic/photoacoustic/photothermal imaging, ultrasonic transducers, photothermal transducers, biomimetic acoustic sensors, and micromachining;
- Optical camouflage, stealth, and metamaterials;
- Intelligent learning approaches, including neural networks (NNs), especially the recently proposed light-weight NNs (Li-NNs) and neural dynamic learning networks.

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Welcome to make contribution!

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