

# Special Issue

## Progress, Challenges, and Future Trends in Computer Vision and Pattern Recognition

### Message from the Guest Editors

Computer vision and pattern recognition have become cornerstone technologies in the modern era of artificial intelligence, driving innovation across diverse domains such as autonomous systems, medical imaging, robotics, smart manufacturing, and environmental monitoring. With the rapid progress of deep learning and multimodal perception, we are witnessing a paradigm shift from task-specific algorithms toward generalizable, interpretable, and trustworthy visual understanding systems.

Despite these remarkable advances, the field continues to face critical challenges, including ensuring robustness under complex environments, achieving efficient learning with limited or imbalanced data, addressing ethical and privacy concerns, and bridging the gap between low-level perception and high-level reasoning. In addition, the integration of vision with other modalities such as language, depth, and tactile information opens new opportunities for embodied intelligence and human–AI collaboration.

### Guest Editors

Dr. Qing Cai

College of Computer Science and Technology, Ocean University of China, Qingdao 266400, China

Dr. Jinxing Li

School of Computer Science and Technology, Harbin Institute of Technology, Shenzhen 518051, China

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*Journal of Imaging*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[jimaging@mdpi.com](mailto:jimaging@mdpi.com)

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### Message from the Editor-in-Chief

The imaging term, specific with journal, is to be considered in its broadest sense. Image processing, image understanding and computer vision are all terms related to imaging acquisition, its processing and the extraction of relevant information from the scene to obtain the underlying knowledge. All tasks related to the above items are oriented toward specific applications in a broad range of areas and topics. The *Journal of Imaging* is conceived as an efficient vehicle in the scientific community for the communication and transmission of the progress and research results in the topics covered.

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### Editor-in-Chief

Prof. Dr. Raimondo Schettini

Department of Informatics, Systems and Communication, University of  
Milano-Bicocca, viale Sarca, 336, 20126 Milano, Italy

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