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Introduction

In 2024, the highly anticipated 3rd International Conference on Optics and Machine Vision (ICOMV 2024) was held was held 19–21 January in Nanchang, China. The conference aimed to provide a high-end platform for experts, scholars, researchers, and enterprise representatives in the field of optics and machine vision from all over the world to present their research results, exchange academic views, and discuss future development trends.

The conference invited many famous experts and scholars from home and abroad, who together discussed the latest research progress, technical breakthroughs, and application practices in the field of optics and machine vision. The keynote speech session is a highlight of the conference, during which the keynote speakers shared their latest achievements and experiences in their respective research fields, bringing an academic feast to the participants. In addition, ICOMV 2024 also set up a number of oral and poster presentation sessions. Attendees had an in-depth discussion on the topics they are interested in, exchanged ideas, and shared experiences with their peers, as well as jointly promoted the development of the field of optics and machine vision.

The conference proceedings, as one of the important outcomes of the conference, gathers the wisdom and insights of the participants and provides valuable academic resources for the development of related fields. It covers a wide range of research directions in the field of optics and machine vision, including Integrated Optics, Optical Communication, Synchrotron Radiation Optics, Machine Vision Systems and Components, Image Enhancement and Analysis Algorithms, Target Detection and Tracking, and many other aspects. The content of the proceedings includes both research on fundamental theories and exploration of application technologies, fully demonstrating the diversity and richness of the field.

ICOMV 2024 has a far-reaching impact. Firstly, it provides an international communication platform for experts and scholars in the field of optics and machine vision, facilitating academic exchanges and cooperation between different countries and regions. The conference promoted the development and application of optical and machine vision technologies in universities and enterprises and injected new vitality into the innovation and development of related industries. Secondly, the papers included in the conference proceedings are published by SPIE after a strict review process, and will be submitted to engineering and scientific databases, such as EI Compendex and Scopus.

We would like to thank all the people involved in ICOMV 2024 for their dedication and efforts. Acknowledgement goes to the organizing committee for their careful planning and organization, which provided a strong guarantee for the smooth

convening of the conference; to the keynote speakers for their wonderful speeches, which brought valuable academic insights to the participants; to the authors for their active participation, which contributed to the richness of the conference proceedings; and to all the attendees for their enthusiastic participation and support, which made ICOMV 2024 a complete success.

The Committee of ICOMV 2024