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Xuping Zhang
Yuncai Wang
Hai Xiao
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Introduction

With distinct advantages such as high precision, fast response, immunity to electromagnetic interference and remote operation capability, optical sensors have traditionally been viewed as a high-end solution to many scientific and engineering problems that demand great performance. Fortunately, over the past decades, the rapid advancements in optical communications have brought to the market low-cost semiconductor lasers, photo detectors, optical fibers, and integrated optical components, which pave the way for optical sensors to enter our daily lives and land on factory floors. Optical sensors are now being used for measurement of various physical, chemical, and biological parameters, providing great solutions for a wide variety of sensing needs that are difficult to handle by other types of sensors. New optical sensing devices, configurations and systems are being proposed, developed, tested, and deployed at an unprecedented pace.

Since 2017, scientists, researchers and engineers around the world gathered in Beijing, China to present their latest research work in the Optical Sensor and Applications conference, as a part of the OIT Symposium. While it was postponed several times by the COVID-19 pandemic, the OIT Symposium was moved to an online format on 8 April 2022.

Nevertheless, the virtual meeting was quite a success. 48 research papers, including 26 oral presentations and 21 posters, were accepted and presented at the Optical Sensor and Applications conference, covering a wide variety of research fields focusing on the latest optical sensors, devices, systems, instrumentation, and signal processing methods. During the conference, the participating researchers shared the latest accomplishments, sparked ideas, envisioned next-generation technologies, challenged each other, and cherished friendships.

The chairs of Optical Sensor and Applications would like to thank our committee members, reviewers, authors and participants for their contributions and support that made the conference a great success. We are also grateful to the staff of SPIE for their support in publishing the volume of the Proceedings of SPIE.

Xuping Zhang
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