

PROCEEDINGS OF SPIE

# ***Sixth International Conference on Computer Vision and Information Technology (CVIT 2025)***

**Jixin Ma**  
*Editor*

**20–22 June 2025**  
**Florence, Italy**

*Sponsored by*  
Music Academy 'Studio Musica' (Italy)

*Published by*  
SPIE

**Volume 13796**

Proceedings of SPIE 0277-786X, V. 13796

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at [SPIDigitalLibrary.org](http://SPIDigitalLibrary.org).

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Sixth International Conference on Computer Vision and Information Technology (CVIT 2025)*, edited by Jixin Ma, Proc. of SPIE 13796, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510694729

ISBN: 9781510694736 (electronic)

Published by

**SPIE**

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)

[SPIE.org](http://SPIE.org)

Copyright © 2025 Society of Photo-Optical Instrumentation Engineers (SPIE).

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center at [copyright.com](http://copyright.com). Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.

**SPIE. DIGITAL  
LIBRARY**

[SPIDigitalLibrary.org](http://SPIDigitalLibrary.org)

---

**Paper Numbering:** A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

# Contents

v *Conference Committee*

---

## INTELLIGENT DETECTION AND ALGORITHM

---

- 13796 02 **Leveraging machine learning framework and GANs for Parkinson disease detection**  
[13796-12]
- 13796 03 **The impact of bio-inspired models on edge detection: a survey** [13796-5]
- 13796 04 **Small lunar crater detection using a few-shot object detection approach with Vision Transformer** [13796-10]
- 13796 05 **Effective clustering with K-means or efficient cropping with YOLO as a preprocessing step for automated fundus image standardization** [13796-9]

---

## IMAGE SEGMENTATION

---

- 13796 06 **Exploration of lightweight SAM + CLIP: harnessing the power of advanced image understanding and segmentation** [13796-6]
- 13796 07 **3D stripe CD-LinkNet: liver vessel segmentation network integrating stripe attention and 3D convolutional operations** [13796-8]
- 13796 08 **A GAN-based preprocessing approach for improved multiorgan segmentation** [13796-7]

---

## IMAGE AND MULTIMEDIA APPLICATION TECHNOLOGY

---

- 13796 09 **Comparing natural image pretraining with digital pathology foundation models for whole slide image-based survival analysis** [13796-1]
- 13796 0A **Enhanced pretraining for laundry classification using FLUX.1: precise prompt-controlled synthetic data for comprehensive class coverage** [13796-17]
- 13796 0B **Enhancing human-machine interaction: a novel approach to emotion-controlled speech-to-animation** [13796-16]
- 13796 0C **The colored Talbot carpet: multifocal focusing of RGB Talbot self-imaging via multispectral zone plates** [13796-18]

---

#### DIGITAL INFORMATION MONITORING SYSTEM AND DATA MANAGEMENT

---

- 13796 0D **Rewiring multi-modal knowledge graphs with GNN link prediction: insights from art history** [13796-15]
- 13796 0E **A\* inspired context-aware adversarial attack with attention-based scores** [13796-2]
- 13796 0F **Progress on the development of a news extraction and analysis system for national and international animal health threat monitoring for Mexico** [13796-14]
- 13796 0G **Localization and extraction of relevant information to alert about phytosanitary risks: FREM** [13796-13]

---

#### SIGNAL MODEL AND ANALYSIS

---

- 13796 0H **Enhancing video quality and reducing network latency in cloud gaming: a literature review** [13796-4]
- 13796 0I **Signal model approximation through domain-aware image stream generation** [13796-3]