



CTU Journal of Innovation and Sustainable Development Can Tho University

ISSN 2588-1418 | e-ISSN 2815-6412



Vol. 17, Special Issue (October 2025)
Intelligent Systems and Data Science (ISDS)

CTU Journal of Innovation and Sustainable Development

ISSN 2588-1418, e-ISSN 2815-6412

Vol. 17, Special Issue (October 2025)

Intelligent Systems and Data Science (ISDS)

EDITORIAL BOARD

Editor-in-Chief
Tran Ngoc Hai

Deputy Editor-in-Chief
Tran Thanh Dien

Members

Tetsu Ando <i>Tokyo University of Agriculture and Technology, Japan</i>	Nguyen Trong Ngu <i>Can Tho University, Viet Nam</i>
Fu-Sung Chiang <i>National Taiwan Ocean University, Taiwan</i>	Nguyen Nguyen Minh <i>CSIRO, Australia</i>
Nigel K. Downes <i>GIZ/CIM Integrated Expert</i>	Pham Thi Hong Nhung <i>University of Foreign Languages, Hue University, Viet Nam</i>
Le Quoc Hoi <i>National Economics University, Viet Nam</i>	Kazufumi Osako <i>Tokyo University of Marine Science and Technology, Japan</i>
Atsushi Ishimatsu <i>Nagasaki University, Japan</i>	Ngo Thanh Phong <i>Can Tho University, Viet Nam</i>
Samir Kumar Khanal <i>University of Hawaii at Manoa, USA</i>	Nguyen Thanh Phuong <i>Can Tho University, Viet Nam</i>
Nguyen Dac Khoa <i>Can Tho University, Viet Nam</i>	Yeong Yik Sung <i>Universiti Malaysia Terengganu, Malaysia</i>
Phan Dinh Khoi <i>Can Tho University, Viet Nam</i>	Yuji Tanaka <i>Tokyo University of Marine Science and Technology, Japan</i>
Nguyen Ngoc Lam <i>Institute of Oceanography, Viet Nam</i>	Nguyen Thanh Thuy <i>VNU University of Engineering and Technology, Viet Nam</i>
Juan Boo Liang <i>Universiti Putra Malaysia, Malaysia</i>	Tran Trung Tinh <i>Can Tho University, Viet Nam</i>
Hoang Ngoc Long <i>Institute of Physics, VAST, Viet Nam</i>	Nguyen Hieu Trung <i>Can Tho University, Viet Nam</i>
Juan J. Loor <i>University of Illinois, United States</i>	Tran Ngoc Tuan <i>Shantou University, China</i>
Do Thanh Nghi <i>Can Tho University, Viet Nam</i>	Phuong Hoang Yen <i>Can Tho University, Viet Nam</i>
Nguyen Chi Ngon <i>Can Tho University, Viet Nam</i>	

CONTENT

An acoustic-mechanical sensing system with multimodal machine learning techniques for in-line quality grading of watermelons <i>Nhut-Thanh Tran, Huu-Phuoc Nguyen, Cat-Tuong Nguyen, Gia-Thuan Truong, Chanh-Nghiem Nguyen, and Masayuki Fukuzawa</i>	1	Towards robust visual recognition for smart cities and remote sensing: A survey of regression losses in rotated object detection <i>Chien Thai, Mai Xuan Trang, and Son Le Anh</i> ...	64
MobiTran-SE: Hybrid MobileNetV3Small-Transformer architecture with squeeze-and-excitation for tomato leaf disease classification <i>Hoang-Tu Vo, Nhon Nguyen Thien, Kheo Chau Mui, Huan Lam Le, Phuc Pham Tien, Hieu Nguyen Trung, and Vuong Nguyen Phuc</i> ...	11	Component-based ensemble cluster analysis <i>Al Maruf Hassan, Huu-Hoa Nguyen, Md. Maruf Hassan, Abdul Kadar Muhammad Masum, and Dewan Md. Farid</i>	75
Incorporating self-attention into DenseNet for multi-label chest X-ray image classification <i>Tri-Thuc Vo, and Thanh-Nghi Do</i>	20	Enabling smart campus indoor spaces through spatial modeling with the IMDF Platform <i>Vu Nguyen Hoang, Nghia Nguyen Dai, Tran Nguyen Thi Kim, Tri Ho Dinh, Thinh Pham Chi, Thai Truong Minh, and Viet Truong Xuan</i>	88
BagViT: Bagged vision transformers for classifying chest X-ray images <i>Thi-Diem Truong, and Thanh-Nghi Do</i>	29	Naviblind: A multimodal AI assistant for visually impaired users to identify product information from images and speech <i>Minh-Quan Tran, Duy Truong, Duy-Tan Pham, Minh-Anh Nguyen, Duc-Tung Le, Di-Hao Le, and Quang-Huy Duong</i>	97
A clinically-oriented 2D image-analysis system for appearance-based aesthetic outcome evaluation of breast reconstruction surgery <i>Takumi Sono, Nam Phong Duong, Yoshihiro Sowa, and Masayuki Fukuzawa</i>	37	Enhancing text-to-SQL capabilities of small language models via schema context enrichment and self-correction <i>Le Gia Kiet, Le Quoc Khanh, Nguyen Minh Nhut, and Nguyen Dinh Thuan</i> ...	106
Non-destructive detection of ovary regions in live female mud crabs by machine-learning assisted multispectral imaging <i>Hai-Dang Vo, Nhut-Thanh Tran, and Masayuki Fukuzawa</i>	47	Traffic flow prediction using adaptive graph convolutional networks and long short-term memory <i>Phan Thi Ngoc Han, Ho Quoc Ngoc, Nguyen Quoc Trung, and Nguyen Thanh Binh</i> ..	117
A hybrid deep learning approach for detecting lung abnormalities from chest X-ray images <i>Viet Dung Nguyen, Van Huan Vu, Duc Lam Le, Huan Vu, and Ngoc Dung Bui</i>	57		

About the Journal

1. CTU Journal of Innovation and Sustainable Development, ISSN 2588-1418, e-ISSN 2815-6412 is published according to the publication license No. 233/GP.BTTTT dated July 10, 2023 granted by the Ministry of Information and Communications.
2. The Journal publishes original research articles and review articles on all aspects of innovation and sustainable development globally in such disciplines, including Engineering Technology, Computer Science, Life Sciences, Economics and Management, and Educational Sciences.
3. Authors must follow the Journal's regulations and guidelines for preparing and submitting manuscripts at the website: ctujs.ctu.edu.vn
4. The Journal frequently receives manuscripts. After the peer-review process in accordance with the Journal's regulations, the approved manuscripts are published in full text at the website: ctujs.ctu.edu.vn
5. For further information and making a submission, please visit the Journal's website: ctujs.ctu.edu.vn

CTU Journal of Innovation and Sustainable Development

*Address: 4th floor, Can Tho University Administration Building
Campus II, 3/2 street, Ninh Kieu ward, Can Tho city, Viet Nam.
Tel: (84-292) 3872 157; Email: ctujoisd@ctu.edu.vn*



Not for sale

*Publication license No. 233 dated July 10, 2023 granted by Ministry of Information and Communications.
Printed by Nhu Cuong Private Enterprise.
Address: No. 78, 30/4 street, Ninh Kieu ward, Can Tho city, Viet Nam.
Size 19 x 26 cm, printed and registered in the fourth quarter of 2025.*



Address: 4th floor, Can Tho University Administration Building
Campus II, 3/2 street, Ninh Kieu ward, Can Tho city, Viet Nam.