THE 4TH INTERNATIONAL CONFERENCE ON ADVANCES IN INFORMATION AND COMMUNICATION TECHNOLOGY

27-28 November, 2025
Hanoi, Vietnam

ICTA2025

PROGRAM BOOKLET

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Preface

Warmly welcome to the 4th International Conference on Advances in Information and Communication Technology (ICTA 2025)!

It is our great pleasure to present the program and proceedings of ICTA 2025, held on 27–28 November 2025 at the VNU Information Technology Institute (VNU-ITI), No. 144 Xuan Thuy Street, Cau Giay, Hanoi, Vietnam. This prestigious event is co-organized by VNU Information Technology Institute, Vietnam (VNU-ITI) and Thai Nguyen University of Information and Communication Technology (ICTU), in collaboration with their partners including: Vietnam ICT Club of Faculties – Institutes – Schools – Universities (FISU); Japan Advanced Institute of Science and Technology, Japan (JAIST); Institute of Information Technology – Vietnam Academy of Science and Technology (IoIT).

This conference aims to provide a forum for exchanges of research results, ideas and experience of application of advanced information and communication technologies (ICT) and their applications. The main theme of ICTA 2025 is to focus and strengthen basic and applied researches that are relevant to Artificial Intelligence and Semi-Conductor. Nowadays, with the great advance of modern technologies and applications of Generative AI and AI-on-the-Edge that are widely used in Smart Home, Smart City, Smart Education, Smart Healthcare, etc. The motivation of new researches that makes the bridge between Artificial Intelligence and Semi-Conductor become greater. The main idea of the conference is to shorten the need between researchers and practitioners within the trend and to highlight further directions that shape the future of ICT.

ICTA 2025 received 357 paper submissions, and after a rigorous peer-review process, 174 high-quality papers were selected for inclusion in the proceedings, which will be published in the Lecture Notes in Networks and Systems (Springer, Scopus Q4 series). The program features keynote and invited talks delivered by distinguished experts, covering frontier topics across academia and industry.

We extend our sincere appreciation to all keynote/invited speakers, authors, and reviewers for their valuable contributions, as well as to the organizing and technical committees for their dedication and hard work. Special gratitude goes to the General Co-Chairs, Program Co-Chairs, and supporting institutions for making ICTA 2025 a success.

We hope that you will find your participation both inspiring and rewarding, and that you will enjoy your stay in the vibrant and hospitable city of Hanoi.

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Keynote Speaker

Prof. Dr. Peter Hubinský
Slovak University of Technology, Bratislava, Slovakia

Speech title 1: Overview of Experiences with Vibration Damping in Electromechanical Systems

(8:50 - 9:20, November 27)

Abstract: The paper deals with various aspects of reducing mechanical oscillations arising in multi-axis electromechanical systems containing flexible members, pendulum mechanisms, etc. It is based on many years of experience, not only in the theoretical field, but especially in numerous experiments on physical systems operating on various principles, including robotic arms, cranes, mobile robotic chassis, and various other manipulation mechanisms. The possibility of applying damping feedback is mentioned. Since this approach may have several implementation limitations, the principles of oscillations reduction based on shaping control signals in one or more degrees of freedom are also introduced. Problems with underactuated structures and the emergence of resonant oscillations are also discussed.

Biography: Peter Hubinský received the Engineering degree in technical cybernetics from the Faculty of Electrical Engineering, Slovak University of Technology, Bratislava, in 1985, and the Ph.D. degree from the Slovak University of Technology in 1992. He specialized further in system theory and drive technology and control of robotic systems and worked as an Assistant with the Faculty of Electrical Engineering in that time and later as Associate Professor. Since 2011, he has been a Professor with the Faculty of Electrical Engineering and Information Technology, Slovak University of Technology. His research and lecture activities are in the areas of servo systems, theory of dynamical systems, motion control systems, robotics, and automation. He is currently the chairman of the board of the school of Electrical Engineering and Information Technology, Slovak University of Technology, Bratislava.

Keynote Speaker

Prof. Dr. Vassilis C. Gerogiannis
University of Thessaly, Larissa, Greece

Speech title 2: Hybrid Evolutionary Feature Selection: From Core Principles to Future AI Challenges

(9:20 – 9:50 | November 27)

Abstract: Feature selection (FS) remains essential for reducing dimensionality, improving model accuracy, and ensuring efficient learning in the age of big data. Hybrid evolutionary algorithms—carefully combining two or more metaheuristics—have recently emerged as powerful search mechanisms for identifying optimal feature subsets while balancing global exploration and local exploitation. This keynote paper presents a forward-looking perspective on the design and deployment of hybrid evolutionary feature selection. Building on our recent research and related high-impact studies, we distill the conceptual foundations of hybridization, highlight emblematic algorithmic synergies such as genetic–particle swarm and grey-wolf–hawk optimizers, and demonstrate their impact in diverse application domains, from medical imaging to text analytics. Beyond summarizing proven methods, we identify key challenges—scalability to ultra-high-dimensional and streaming data, integration with explainable AI, and energy-aware optimization—that must be addressed to meet the demands of next-generation intelligent systems. The paper concludes with a call for cross-disciplinary collaboration and industrial uptake of hybrid evolutionary feature selection.

Biography: Vassilis C. Gerogiannis is a full-time Professor and Head in the Department of Digital Systems at the University of Thessaly in Greece. His academic subject is "Analysis & Design of Systems & Projects with Emphasis on Decision Making". He is also adjunct Professor at the Hellenic Open University (Greece). He holds a Diploma in Computer Engineering (1992) and a PhD in Software Engineering (2001) from the University of Patras in Greece. His research interests include fuzzy decision making, software engineering, requirements engineering, systems analysis and design, software project management and machine learning. From 1992 until present, he has been participated in several R&D projects. He has been author/co-author of over 180 papers which have been published in international journals/conference proceedings and cited in a plethora of citations. He has been co-author/editor of three scientific books, member of the editorial board, guest editor and reviewer in international journals. He has served as conference chair/program chair and invited speaker in several international conferences. He has received the "best paper award" in five international conferences. He has served as member of the management board of the Hellenic National Academic Recognition Information Centre (NARIC) and member of the Council for Research & Innovation in Thessaly region of Greece. At present, he is a member of the management committee of the Entrepreneurship & Innovation Research Institute of the Research Center IASON at the University of Thessaly, member of the management committee of the Technical Chamber of Engineers in Central and Western Greece, member of the central assembly of the Technical Chamber of Engineers in Greece, member of the scientific committee of Electronics Engineers in the Technical Chamber of Greece and also member of the ACM.

Keynote Speaker

Prof. Dr. Juin J. Liou
North Minzu University, China

Speech title 3: Micro/Nanoelectronics: Current Status, Outlook, and Reliability Issues

(9:50 – 10:25 | November 27)

Abstract: The industry of micro/nanoelectronics is highly vital to the global economy. While the research and development of microelectronics have been very active and fruitful in the past 40 years, many new technologies have emerged recently which makes the field of micro/nanoelectronics evolving, challenging, and unpredictable in the foreseeable future. Aside from the various semiconductor processes and design metrics, reliability is also a critical measure to the quality of micro/nanoelectronic devices/circuits/systems, as no products can prevail in the markets without a high level of reliability.

An overview on the background, current status, and outlook of the field of micro/nanoelectronics will first be introduced in this talk. This is followed by discussions of micro/nanoelectronics reliability background, protection requirements, and viable solutions for the current and emerging technologies.

Biography: Juin J. Liou received the B.S. (honors), M.S., and Ph.D. degrees in electrical engineering from the University of Florida, Gainesville, Florida, USA in 1982, 1983, and 1987, respectively. In 1987, he joined the Department of Electrical and Computer Engineering at the University of Central Florida (UCF), Orlando, Florida where he held the positions of Pegasus Distinguished Professor, Lockheed Martin St. Laurent Professor, and UCF-Analog Devices Fellow. Dr. Liou is currently a chair professor at North Minzu University, China. Dr. Liou's research interests are electrostatic discharge (ESD) protection design, modeling and simulation, and characterization.

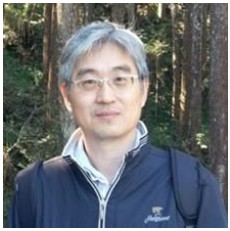
Dr. Liou holds 25 patents and has published 13 books, more than 370 journal papers (including 25 invited review articles), and more than 275 papers (including more than 130 keynote and invited papers) in international and national conference proceedings. Dr. Liou has served as a technical reviewer for various journals and publishers, general chair or technical program chair for a large number of international conferences, regional editor (in USA, Canada and South America) of the Microelectronics Reliability journal, and guest editor of 7 special issues in the IEEE Journal of Emerging and Selected Topics in Circuits and Systems, Microelectronics Reliability, Solid-State Electronics, World Scientific Journal, and International Journal of Antennas and Propagation.

Dr. Liou received ten different awards on excellence in teaching and research from the University of Central Florida (UCF) and six different awards from the IEEE. Among them, he was awarded the UCF Pegasus Distinguished Professor (2009) – the highest honor bestowed to a faculty member at UCF, UCF Distinguished Researcher Award, UCF Research Incentive Award, IEEE Joseph M. Biedenbach Outstanding Engineering Educator Award in 2004 for exemplary engineering teaching, research, and international collaboration, and IEEE Electron Devices Society Education Award in 2014 for promoting and inspiring global education and learning in the field of electron devices. His other honors are Fellow of IEEE, Fellow of

IET, Fellow of AAIA, Fellow of Singapore Institute of Manufacturing Technology, Fellow of UCF-Analog Devices, Distinguished Lecturer of IEEE Electron Device Society (EDS), and Distinguished Lecturer of National Science Council. He holds several honorary professorships, including the Chang Jiang Scholar Endowed Professor – the highest honorary professorship in China.

Dr. Liou had served as the IEEE EDS Vice-President of Regions/Chapters, IEEE EDS Treasurer, IEEE EDS Finance Committee Chair, Member of IEEE EDS Board of Governors, and Member of IEEE EDS Educational Activities Committee.

Keynote Speaker



Prof. Dr. Oscal Tzyh-Chiang Chen
National Chung Cheng University, Taiwan

Speech title 4: Pervasive Intelligence: Evolving from Moore's Law to the Era of Language Model Scaling

(13:00 – 13:40 | November 27)

Abstract: Today, our world is being reshaped by intelligent systems that transform nearly every aspect of daily life—social interaction, entertainment, transportation, education, healthcare, and beyond. Creating such systems requires a fundamental shift in how we design and engineer technology, moving from traditional methods toward AI-driven approaches. Advancing these technologies demands progress across all levels of innovation: algorithms, models, architectures, implementation, fabrication, packaging, system integration, and application software. While electronic development has long followed Moore's Law (Gordon Moore), the age of Artificial Intelligence (AI) is now ushering in what may be called the "Language Model Law" (Jensen Huang's Law). This presentation explores the chip and system design, asking a central question: How must we re-engineer engineering itself to meet the challenges of the next decade and beyond? It further introduces the evolution from chatbots to large language model applications, illustrating their migration and future directions. In the realm of generative AI, an example based on a diffusion model will be presented. With the increasing demand for efficient computation across AI workloads, the discussion will also address neural model optimization—balancing performance, hardware capability, computational efficiency, power consumption, and latency. Ultimately, we are entering an era dedicated to creating technologies that enable a more innovative, intelligent, and human-centered future.

Biography: Oscal Tzyh-Chiang Chen (Senior Member, IEEE) received a B.S. degree in electrical engineering from National Taiwan University in 1987, and M.S. and Ph.D. degrees in electrical engineering from the University of Southern California, Los Angeles, USA, in 1990 and 1994, respectively. He worked with the Computer Processor Architecture Department, Computer Communication & Research Laboratories (CCL), Industrial Technology Research Institute (ITRI), serving a system design engineer, project leader, and section chief from 1994 to 1995. He was an associate professor with the Department of Electrical Engineering, National Chung Cheng University (NCCU), Chiayi, Taiwan, from September 1995 to August 2003. He also served as the Director of the Academic Development Division, Office of Research and Development, NCCU, from July 2001 to July 2004, and the Director of the Technology Transfer Center, NCCU, from July 2003 to July 2004. Since August 2003, he has been a Professor with the Department of Electrical Engineering, NCCU, in which he served as the Department Chair from August 2018 to July 2021. He was a visiting scholar with the Department of Electrical and Computer Engineering, Carnegie Mellon University, USA, from December 2007 to May 2008, and the Department of Electrical and Computer Engineering, University of Wisconsin-Madison, USA, from February 2011 to July 2011. He has published more than 180 journal and conference papers and five book chapters, and holds 36 Taiwan patents, 22 U.S.

patents, and one Chinese patent. His research interests include multimedia processing and understanding, neural networks, VLSI systems, and communication systems. He is a life member of the Chinese Fuzzy Systems Association. In the technical society, he was an Associate Editor of IEEE Circuits and Devices Magazine, from August 2003 to December 2006, and a founding member of the Multimedia Systems and Applications Technical Committee of IEEE Circuits and Systems Society. He also participated in the technical program committees of many IEEE international conferences and symposiums. Prof. Chen has been listed among world's top 2% of most-cited scientists by Stanford University Ranking 2021 and 2022 (Scopus).

Invited Speaker

Dr. Qiang Cui
Zhejiang University, China

Speech title: How to Design Effective On-Chip ESD Protection Circuits with Minimum Impacts to the Core Circuits

(13:40 – 14:15, November 27)

Abstract: Artificial Intelligence (AIs), Electric Vehicles (EVs) and 5G Wireless Communication are three fast-growing applications nowadays, creating huge demands of high-performance integrated circuits (ICs) which operates under high speed, high voltage or high frequency condition. Electrostatic discharge (ESD) has been a major threat since the birth of ICs, and it gets even more challenging to protect against in high speed, high voltage and high frequency ICs because the protection circuit's load will degrade core circuits' performance inevitably. To overcome this, we will analyse the key ESD design considerations of the above-mentioned high-performance ICs, build simulation setups with technology computer-aided design (TCAD) tools, discuss different ESD test standards such as MIL-STD-883, IEC 6100-4-2, AEC-Q100, and explain the methods to adjust the key electrical parameters such as trigger voltage (V_{t1}), the failure current (I_{t2}). In addition, we will discuss the methods to minimize ESD protection circuits' loading effect for high speed, high frequency ICs, and the methods to increase the holding voltage (V_h) for high voltage ICs. Finally, this talk will discuss some real world ESD protection case for high-performance ICs. This talk provides a timely summary of ESD protection circuits for high performance ICs in the era of AI, EVs and 5G.

Biography: Dr. Qiang Cui is a Tenure-Track Professor of Zhejiang University's College of Integrated Circuits. Dr. Cui has over 15 years of experience in the semiconductor industry (Apple, Qorvo) and research institutes (Massachusetts Institute of Technology, University of Central Florida). He has led or designed several strategic integrated circuits widely used in wireless products. Dr. Cui is a senior member of IEEE and serves on the reviewer panel of several IEEE journals such as IEEE Transaction on Electron Devices, IEEE Electron Device Letters, IEEE Transaction on Device and Materials Reliability, Solid State Electronics and Microelectronics Reliability, and so on. Dr Cui's current research interests include automotive ESD protection, wireless communication ICs, high speed I/O circuits, and mixed signal IC design.

PROGRAM AT A GLANCE

THE 4th INTERNATIONAL CONFERENCE ON ADVANCES IN INFORMATION AND COMMUNICATION TECHNOLOGY (ICTA 2025)

VNU Information Technology Institute, November 27-28, 2025

Venue: Jonathan KS. Choi Cultural Centre, Vietnam National University, Hanoi

https://icta-conf.com

DAY 1: THURSDAY, NOVEMBER 27, 2025	
7h30-8h00	**Registration and welcoming delegates & participants**
8h00-8h50	**Opening Ceremony**
8h00-8h10	**Opening Remark** *Prof. Dr. Xuan-Tu Tran, Director, Information Technology Institute, Vietnam National University, Hanoi, ICTA 2025 General Co-Chair*
8h10-8h20	**Welcome Speech** *Assoc. Prof. Dr. Trung-Nghia Phung, Rector, Thai Nguyen University of Information and Communication Technology, ICTA 2025 General Co-Chair*
8h20-8h30	**ICTA 2025 Plenary Speech** *Prof. Dr. Vassilis C. Gerogiannis, University of Thessaly, Greece* *ICTA 2025 General Co-Chair*
8h30-8h40	**Launching Ceremony of the Alliance to support training, research and supply high-quality human resources for the semiconductor industry** *Assoc. Prof. Dr. Bao-Son Pham, Vice-President, Vietnam National University, Hanoi*
8h40-8h50	**Group photos**
PLENARY SESSION 1 Venue: Jonathan KS. Choi Cultural Centre, Vietnam National University, Hanoi *Chairs: Assoc. Prof. Dr. Hoang-Son Le and Dr. Duc-Thai Vu*	
8h50-9h20	**Keynote Speeches** **Keynote Speech 1:** Overview of Experiences with Vibration Damping in Electromechanical Systems *Prof. Dr. Peter Hubinsky, Slovak University of Technology, Bratislava, Slovakia*
9h20-9h50	**Keynote Speech 2:** Hybrid Evolutionary Feature Selection: From Core Principles to Future AI Challenges *Prof. Dr. Vassilis C. Gerogiannis, University of Thessaly, Greece*
9h50-10h25	**Keynote Speech 3:** Micro/Nanoelectronics: Current Status, Outlook, and Reliability Issues *Prof. Dr. Juin J. Liou, North Minzu University, China*

10h25-10h40	**COFFEE BREAK**		
PARALLEL SESSIONS 1			
10h40 – 12h00	**Session 01: Modern Technologies for Applied AI** *Venue:* ULIS-SUNWAH Hall, Jonathan KS Choi center *Chairs:* 1. Dr. Huy-Thong Pham (Hanoi University of Industry, Vietnam) 2. Dr. Thi-Hong-Lan Luong (Hanoi University of Industry, Vietnam)	**Session 04: Big data and AI in life science** *Venue:* Room 603, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Assoc. Prof. Minh-Trien Pham (VNU University of Engineering and Technology, Vietnam) 2. Dr. Duc-Ha Chu (VNU University of Engineering and Technology, Vietnam)	**Session 07: Multimedia** *Venue:* Room 612, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Prof. Sinku Kumar Singh (Swami Ramanand Teerth Marathwada University, India) 2. Dr. Duc-Binh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam)
	Session 02: Modern Technologies for Applied AI *Venue:* Room Hanoi (2nd floor), Jonathan KS Choi center *Chairs:* 1. Dr. Manh-Hung Ha (VNU International School, Vietnam) 2. Dr. The-Huan Phung (Thai Nguyen University of Information and Communication Technology, Vietnam)	**Session 05: Mechatronics and Automation** *Venue:* Room 505, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Prof. Peter Hubinsky (Slovak University of Technology, Bratislava, Slovakia) 2. Assoc. Prof. Tung-Lam Nguyen (Hanoi University of Science and Technology, Vietnam)	**Session 08: Electronics Circuits and Systems** *Venue:* Conference Room ULIS-SUNWAH (2nd floor), Jonathan KS Choi center *Chairs:* 1. Dr. Duy-Anh Nguyen (University of Transport and Communications, Vietnam) 2. Dr. Manh-Hiep Dao (VNU Information Technology Institute, Vietnam)
	Session 03: Digital Economics & Management *Venue:* Room 607, Building E3, Vietnam National University, Hanoi *Chairs:* 1. The-Vinh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) 2. Cong-Doan Truong (VNU International School, Vietnam)	**Session 06: AI-powered Vision and Language Models** *Venue:* Room 405, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Dr. Duc-Trong Le (VNU University of Engineering and Technology, Vietnam) 2. Assoc. Prof. Thi-Ngan Tran (VNU International School, Vietnam)	**Session 09: AI-Driven Decision Support Systems for Biomedical Applications** *Venue:* Room 611, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Dr. Duc-Tho Mai (Academy of Cryptography Techniques, Vietnam)
9h00 – 12h00	**Seminar: Fostering Cooperation to Promote Training and Research in the Semiconductor field** *Venue: Room 203, Building D2, Vietnam National University, Hanoi* *Chair: The Alliance to support training, research and supply high-quality human resources for the semiconductor industry*		

LUNCH TIME Lach Ca Lach Cach Restaurant, 5th floor Indochina Plaza Hanoi

PLENARY SESSION 2 Venue: Jonathan KS. Choi Cultural Centre, Vietnam National University, Hanoi *Chairs: Dr. Duy-Hieu Bui and Dr. Quang-Khanh Duong*	
13h00-13h40	**Keynote Speech 4:** Pervasive Intelligence: Evolving from Moore's Law to the Era of Language Model Scaling *Prof. Dr. Oscal Tzyh-Chiang Chen, National Chung Cheng University, Taiwan*
13h40-14h15	**Invited Speeches** **Invited Speech:** How to Design Effective On-Chip ESD Protection Circuits with Minimum Impacts to the Core Circuits *Dr. Qiang Cui, Zhejiang University, China*
14h15-14h30	**COFFEE BREAK**

PARALLEL SESSIONS 2			
14h30 – 16h00	**Session 10: Modern Technologies for Applied AI** *Venue:* ULIS-SUNWAH Hall, Jonathan KS Choi center *Chairs:* 1. Dr. Huy-Thong Pham (Hanoi University of Industry, Vietnam) 2. Dr. Duc-Tho Mai (Academy of Cryptography Techniques, Vietnam)	**Session 13: Big data and AI in life science** *Venue:* Room 603, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Assoc. Prof. Minh-Trien Pham (VNU University of Engineering and Technology, Vietnam) 2. Cuong Nguyen (Institute of Information Technology, Vietnam Academy of Science and Technology, Vietnam)	**Session 16: Multimedia** *Venue:* Room 612, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Hai-Minh Nguyen (Thai Nguyen University of Information and Communication Technology) 2. Prof. Sinku Kumar (Singh Swami Ramanand Teerth Marathwada University)
	Session 11: Modern Technologies for Applied AI *Venue:* Room Hanoi (2nd floor), Jonathan KS Choi center *Chairs:* 1. Dr. Manh-Hung Ha (VNU International School, Vietnam) 2. Dr. The-Huan Phung (Thai Nguyen University of Information and Communication Technology, Vietnam)	**Session 14: Mechatronics and Automation** *Venue:* Room 505, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Assoc. Prof. Minh-Duc Duong (Hanoi University of Science and Technology, Vietnam) 2. Assoc. Prof. Tung-Lam Nguyen (Hanoi University of Science and Technology, Vietnam)	**Session 17: Electronics Circuits and Systems** *Venue:* Conference Room ULIS-SUNWAH (2nd floor), Jonathan KS Choi center *Chairs:* 1. Dr. Duy-Anh Nguyen (University of Transport and Communications, Vietnam) 2. Dr. Manh-Hiep Dao (VNU Information Technology Institute, Vietnam)

PARALLEL SESSIONS 2 Venue: Jonathan KS. Choi Cultural Centre, Vietnam National University, Hanoi *Chairs: Dr. Duy-Hieu Bui and Dr. Quang-Khanh Duong*			
	Session 12: Digital Economics & Management *Venue:* Room 607, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Dr. The-Vinh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) 2. Assoc. Prof. Dr. Van-Nui Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam)	**Session 15: AI-powered Vision and Language Models** *Venue:* Room 405, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Dr. Duc-Trong Le (VNU University of Engineering and Technology, Vietnam) 2. Dr. Duc-Binh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam)	**Session 18: AI-Driven Decision Support Systems for Biomedical Applications** *Venue:* Room 611, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Dr. Minh-Tuan Le (Trade Union University, Vietnam)
16h00-16h15	**COFFEE BREAK**		

PARALLEL SESSIONS 3			
16h15 – 18h15	**Session 19: Modern Technologies for Applied AI** *Venue:* ULIS-SUNWAH Hall, Jonathan KS Choi center *Chairs:* 1. Dr. Huy-Thong Pham (Hanoi University of Industry, Vietnam) 2. Dr. Dr. Thi-Hong-Lan Luong (Hanoi University of Industry, Vietnam)	**Session 22: Big data and AI in life science** *Venue:* Room 603, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Dr. Duc-Ha Chu (VNU University of Engineering and Technology, Vietnam) 2. Cuong Nguyen (Institute of Information Technology, Vietnam Academy of Science and Technology, Vietnam)	**Session 25: Mathematical Foundations in Informatics** *Venue:* Room 612, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Assoc. Dr. Van-Nui Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) 2. Dr. Xuan-Truong Quach (Thai Nguyen University of Information and Communication Technology, Vietnam)
	Session 20: Modern Technologies for Applied AI *Venue:* Room Hanoi (2nd floor), Jonathan KS Choi center *Chairs:* 1. Dr. Manh-Hung Ha (VNU International School, Vietnam) 2. The-Huan Phung (Thai Nguyen University of Information and Communication Technology, Vietnam)	**Session 23: Mechatronics and Automation** *Venue:* Room 505, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Assoc. Prof. Minh-Duc Duong (Hanoi University of Science and Technology, Vietnam) 2. Assoc. Prof. Tung-Lam Nguyen (Hanoi University of Science and Technology, Vietnam)	**Session 26: Bioinformatics and Computational Biology** *Venue:* Conference Room ULIS-SUNWAH (2nd floor), Jonathan KS Choi center *Chairs:* 1. Dr. Sy-Nam Vo (Vingroup Big Data Institute, Vietnam) 2. Assoc. Prof. Dang-Hung Tran (Hanoi University of Industry, Vietnam)
	Session 21: Digital Economics & Management *Venue:* Room 607, Building E3, Vietnam National University, Hanoi *Chairs:* 1. The-Vinh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) 2. Cong-Doan Truong (VNU International School, Vietnam)	**Session 24: AI-powered Vision and Language Models** *Venue:* Room 405, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Dr. Duc-Trong Le (VNU University of Engineering and Technology, Vietnam) 2. Dr. Hai-Minh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam)	**Session 27: AI-Driven Decision Support Systems for Biomedical Applications** *Venue:* Room 611, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Dr. Minh-Tuan Le (Trade Union University, Vietnam)
19h00	**GALA DINNER** Mövenpick Living West Hanoi, 21 Duy Tan Street, Cau Giay, Hanoi		

<table>
<tr><th colspan="3">DAY 2: FRIDAY, NOVEMBER 28, 2025</th></tr>
<tr><th colspan="3">PARALLEL SESSIONS 4</th></tr>
<tr><td rowspan="2">08h30
–
10h15</td><td>Session 28: Digital Economics & Management
Venue: Room 603, Building E3, Vietnam National University, Hanoi
Chairs:
1. Dr. Trung-Tuan Nguyen (National Economics University, Vietnam)
2. Dr. Giap Cu Nguyen (Thuongmai University, Vietnam)</td><td>Session 30: AI-powered Vision and Language Models
Venue: Room 405, Building E3, Vietnam National University, Hanoi
Chairs:
1. Dr. Ngoc-Tan Nguyen (VNU University of Engineering and Technology, Vietnam)
2. Dr. Trong-Nghia Nguyen (National Economics University, Vietnam)</td></tr>
<tr><td>Session 29: Mechatronics and Automation
Venue: Room 505, Building E3, Vietnam National University, Hanoi
Chairs:
1. Prof. Peter Hubinsky (Slovak University of Technology, Bratislava, Slovakia)
2. Assoc. Prof. Quy-Thinh Dao (Hanoi University of Science and Technology, Vietnam)</td><td>Session 31: Modern Technologies for Applied AI
Venue: Room 612, Building E3, Vietnam National University, Hanoi
Chairs:
1. Dr. Hai-Phong Dau (Trade Union University)
2. Dr. Quang-Khanh Duong (VNU Information Technology Institute, Vietnam)</td></tr>
<tr><td>10h15-10h30</td><td colspan="2">COFFEE BREAK</td></tr>
<tr><th colspan="3">PARALLEL SESSIONS 5</th></tr>
<tr><td rowspan="2">10h30
–
12h00</td><td>Session 32: Mechatronics and Automation
Venue: Room 505, Building E3, Vietnam National University, Hanoi
Chairs:
1. Prof. Peter Hubinsky (Slovak University of Technology in Bratislava, Slovakia)
2. Assoc. Prof. Quy-Thinh Dao (Hanoi University of Science and Technology, Vietnam)</td><td>Session 34: Modern Technologies for Applied AI
Venue: Room 612, Building E3, Vietnam National University, Hanoi
Chairs:
1. Dr. Hai-Phong Dau (Trade Union University)
2. Dr. Giap Cu Nguyen (Thuongmai University, Vietnam)</td></tr>
<tr><td>Session 33: AI-powered Vision and Language Models
Venue: Room 405, Building E3, Vietnam National University, Hanoi
Chairs:
1. Dr. Ngoc-Tan Nguyen (VNU University of Engineering and Technology, Vietnam)
2. Dr. Trong-Nghia Nguyen (National Economics University, Vietnam)</td><td></td></tr>
</table>

13h30 – 16h00	**Session 35: Modern Technologies for Applied AI** *Venue:* Room 603, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Assoc. Prof. Andreas Kanavos (Ionian University, Greece)	**Session 36: AI-Driven Decision Support Systems for Biomedical Applications** *Venue:* Room 603, Building E3, Vietnam National University, Hanoi *Chairs:* 1. Assoc. Prof. Hoang-Son Le (VNU Information Technology Institute, Vietnam) 2. Dr. Quang-Khanh DuongLe (VNU Information Technology Institute, Vietnam)

Technical Program

Electronic version: https://icta-conf.com/technical-program/

DAY 1: THURSDAY, NOVEMBER 27, 2025	
7h30-8h00	**Registration and welcoming delegates & participants**
8h00-8h50	**ICTA 2025 Opening Ceremony**
8h00-8h10	**Opening Remark** *Prof. Dr. Xuan-Tu Tran, Director, Information Technology Institute, Vietnam National University, Hanoi, ICTA 2025 General Co-Chair*
8h10-8h20	**Welcome Speech** *Assoc. Prof. Dr. Trung-Nghia Phung, Rector, Thai Nguyen University of Information and Communication Technology, ICTA 2025 General Co-Chair*
8h20-8h30	**ICTA 2025 Plenary Speech** *Prof. Dr. Vassilis C. Gerogiannis, University of Thessaly, Greece* *ICTA 2025 General Co-Chair*

8h30-8h40	**Launching Ceremony of the Alliance to support training, research and supply high-quality human resources for the semiconductor industry** *Assoc. Prof. Dr. Bao-Son Pham, Vice-President,* *Vietnam National University, Hanoi*
8h40-8h50	**Group photos**
PLENARY SESSION 1 **Venue: Jonathan KS. Choi Cultural Centre, Vietnam National University, Hanoi** *Chairs: Assoc. Prof. Dr. Hoang-Son Le and Dr. Duc-Thai Vu*	
8h50-9h20	**Keynote Speeches** **Keynote Speech 1:** Overview of Experiences with Vibration Damping in Electromechanical Systems *Prof. Dr. Peter Hubinsky, Slovak University of Technology, Bratislava, Slovakia*
9h20-9h50	**Keynote Speech 2:** Hybrid Evolutionary Feature Selection: From Core Principles to Future AI Challenges *Prof. Dr. Vassilis C. Gerogiannis, University of Thessaly, Greece*
9h50-10h25	**Keynote Speech 3:** Micro/Nanoelectronics: Current Status, Outlook, and Reliability Issues *Prof. Dr. Juin J. Liou, North Minzu University, China*
10h25-10h40	**COFFEE BREAK**

PARALLEL SESSIONS 1			
Session 01: Modern Technologies for Applied AI		**ID**	**Paper titles**
1	Venue: ULIS-SUNWAH Hall, Jonathan KS Choi center 10h40-12h00 Chairs: 1. Dr. Huy-Thong Pham (Hanoi University of Industry, Vietnam) 2. Dr. Thi-Hong-Lan Luong (Hanoi University of Industry, Vietnam) Secretary: Mr. Tam Ngo Duc	**18**	**Ensemble Methods for Melasma Diagnosis and Causal Analysis** *Van Lam Ho, Thi Thu Ngan Le and Xuan Viet Tran*
2		**29**	**Detecting outliers from Wireless Sensor Networks using Reinforcement Learning** *Tran Tuan Toan, Mai Ha Thi, Dang Thanh Hai, Le Minh Tuan, Pham Thi Kim Hoa and Le Hoang Son*
3		**35**	**Deep Learning-Based Human-Object Interaction Recognition in Student Sessions** *Pham Ba Tuan Chung, Le Trong Minh, Le Minh Tuan, Phung The Huan and Le Hoang Son*
4		**40**	**ViTravelRAG: A Multimodal Retrieval-Augmented Generation Framework for Vietnamese Travel Assistance** *Nguyen Van Nha, Nguyen Nhu Giap, Phung The Huan, Le Minh Tuan and Le Hoang Son*
Session 02: Modern Technologies for Applied AI		**ID**	**Paper titles**
1	Venue: Room Hanoi (2nd floor), Jonathan KS Choi center	**30**	**An empirical study for multi-task machine learning models for Vietnamese text summarization and keyword extraction**

PARALLEL SESSIONS 1			
	10h40-12h00 Chairs: 1. Dr. Manh-Hung Ha (VNU International School, Vietnam) 2. Dr. The-Huan Phung (Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Duy-Hoang Bui		*Dinh Thu Khanh, Hoang Duc Trung, Vu Duc Thi, Le Minh Tuan and Nguyen Long Giang*
2		**48**	**AI-Driven Optimization for Real-Time Forex Trading Systems** *Mai Van Hoan*
3		**56**	**DataMod: A New Process Of ROI Extraction And Labelling For Detection Of Gingivitis From Intraoral Image** *Duy Hoang Bao, Son Tong Minh, Nghia Le Long, Tu Chu Pham Dinh and Anh Nguyen Ngoc*
4		**66**	**Enhancing Student Mental Health in Vietnam via a Predictive Emotion Chatbot** *Ngoc Phuong Doan, Phuong Nam Nguyen, The-Vinh Nguyen and Lan Oanh Nguyen*
Session 03: Digital Economics & Management		**ID**	**Paper titles**
1	Venue: Room 607, Building E3, Vietnam National University, Hanoi 10h40-12h00 Chairs: 1. The-Vinh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam)	**17**	**Exploring Individual Customers' Intention to Use Fintech Services** *Huong Dao Thi and Hang Nguyen Thi*
2		**54**	**Assessing Factors Affecting Digital Social Activities. Case Study: Hai Phong** *Nam Vu Xuan, Nguyen Nguyen Hoang and Phuong Ngo Mai*
3		**61**	**Enhancing Sustainable Repurchase Intentions Through Digital Logistics in E-Commerce: Evidence From Gen Z Consumers**

PARALLEL SESSIONS 1			
	2. Cong-Doan Truong (VNU International School, Vietnam) Secretary: Mr. Phu-Loc Nguyen		*Ngoc-Hong Duong, Nguyen-My-Duyen Cao, Thi-Tuyet-Sa Cai, Xuan-Hong-Minh Vu and Cao-Tri Dang*
4		**75**	**From Usefulness to Developmental Value: Reframing Technology Acceptance in Virtual Reality Tourism** *Tuyen Tran and Hanh Nguyen*
Session 04: Big data and AI in life science		**ID**	**Paper titles**
1	Venue: Room 603, Building E3, Vietnam National University, Hanoi 10h40-12h00 Chairs: 1. Assoc. Prof. Minh-Trien Pham (VNU University of Engineering and Technology, Vietnam) 2. Dr. Duc-Ha Chu (VNU University of Engineering and Technology, Vietnam) Secretary: Mr. Tu Chu Pham Dinh	**24**	**Optimizing Flight Time UAV for Collecting Big Data for Smart Agricultural Applications** *Phat Nguyen Huu, Duong Nguyen Canh, Dung Hoang Tuan, Khoa Nguyen Dac, Nam Do Huy and Quang Hoang Van*
2		**38**	**APPLICATION OF MASSFLOW THEORY VIA STAN FOR WATER POLLUTION RISK ASSESSMENT IN SUSTAINABLE ECONOMIC DEVELOPMENT PLANNING** *Viet Tran Quoc, Hang Nguyen Thi, Xuan Manh Trinh and Anh Nguyen Hung*
3		**134**	**Real-time NILM using Tiny-ANN on Sub-dollar Edge Device under Extreme Resource Constraints** *Son Nguyen Khanh, Son Nguyen Ngoc and An Nguyen Ngoc*
4		**136**	**A Novel Multimodal Feature and DL-based Virtual Screening Approach for HDAC6 Inhibitors Discovery** *Son Nguyen Thanh, Dung Do Thi Mai, Tue Le Van, An Nguyen Ngoc and Hoang Thuy Duong Vu*

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<tr><th colspan="4">PARALLEL SESSIONS 1</th></tr>
<tr><th colspan="2">Session 05: Mechatronics and Automation</th><th>ID</th><th>Paper titles</th></tr>
<tr><td>1</td><td rowspan="4">Venue: Room 505, Building E3, Vietnam National University
10h40-12h00
Chairs:
1. Prof. Peter Hubinsky (Slovak University of Technology, Bratislava, Slovakia)
2. Assoc. Prof. Tung-Lam Nguyen (Hanoi University of Science and Technology, Vietnam)
Secretary:
Mr. Manh-Quan Hoang</td><td>8</td><td>YOLO-CSSA: A Fusion-Enhanced Multimodal Network for RGB-Infrared Object Detection
Thai-Viet Dang, Nhu-Nghia Bui, Dinh-Truong-An Vu, Van-Truong Nguyen, Xiem Van Hoang and Ngoc-Tam Bui</td></tr>
<tr><td>2</td><td>9</td><td>Modeling of Antagonistic Pneumatic Artificial Muscles Using Takagi-Sugeno Fuzzy model
Quoc-Toan Tran, Truong Giang Mai, Minh Duc Duong and Quy-Thinh Dao</td></tr>
<tr><td>3</td><td>57</td><td>An Advanced Control Method for Low-Voltage Microgrids with Self-Adaptive Parameter Capability
Hong Anh Pham Thi and Thu Phuong Le Thi</td></tr>
<tr><td>4</td><td>180</td><td>Iterative Learning Control with Uncertainty Compensation for Series Elastic Actuators
Thi Ly Tong, Cong Hieu Tran and Minh Duc Duong</td></tr>
<tr><th colspan="2">Session 06: AI-powered Vision and Language Models</th><th>ID</th><th>Paper titles</th></tr>
<tr><td>1</td><td>Venue: Room 405, Building E3, Vietnam National University, Hanoi</td><td>15</td><td>MoodFlow: Cross-Modal Music Recommendation for Short-Form Videos via Neural ODEs with Mood-Aligned Music Recommendations</td></tr>
</table>

PARALLEL SESSIONS 1			
	10h40-12h00 Chairs: 1. Dr. Duc-Trong Le (VNU University of Engineering and Technology, Vietnam) 2. Assoc. Prof. Thi-Ngan Tran (VNU International School, Vietnam) Secretary: Mr. Hong-Quan Phung		*Ngan Tran Thi, Duc Pham Minh, Quang Anh Nguyen Duc, Minh-Anh Nguyen and Hai Nam Nguyen*
2		**26**	**S2R-GAN: A Spatio-Temporal Generative Adversarial Network for Radar Image Nowcasting from Image Sequences** *Ha Gia Son, Tran Manh Tuan, Hoang Duc Trung, Le Hoang Son and Trinh Van Bang*
3		**28**	**A new multi-modal forecasting system for water level estimation** *Hoang Thi Minh Chau, Tran Thanh Lam, Tran Thi Ngan, Nguyen Long Giang, Nguyen Nhu Son, Hoang Duc Trung and Phung The Huan*
4		**178**	**Fine-Tuning Generative LLMs for Geographic Analysis: Comparing GPT-4o, Gemma-2B, and DeepSeek-R1** *Kim-Son Nguyen, The-Vinh Nguyen, Huu-Huy Ngo, Van-Viet Nguyen, Thi Minh-Hue Luong, Huu-Khanh Nguyen and Duc-Binh Nguyen*
Session 07: Multimedia		**ID**	**Paper titles**
1	Venue: Room 612, Building E3, Vietnam National University, Hanoi 10h40-12h00 Chairs: 1. Prof. Sinku Kumar Singh (Swami Ramanand Teerth Marathwada University, India) 2. Dr. Duc-Binh Nguyen	**73**	**Performance analysis of deep clustering for product quantization** *Thi-Anh-Loan Trinh, The-Anh Pham, Van-Cuong Nguyen and Hai-Minh Nguyen*
2		**164**	**Investigating Public Engagement with Multimedia Content in Vietnam's Digital News Media: An Exploratory Approach** *Tran Quang Quy and La Thuy Linh*
3		**188**	**A multi-task learning approach to reduce misclassification severity in facial emotion recognition** *Duc Duy Le, Thanh Ha Le and Thi Duyen Ngo*

PARALLEL SESSIONS 1			
4	(Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Trong-Minh Le	**208**	**Facial Emotion Recognition in Children via Transfer Learning and Multi-Domain Adaptation** *Nhat Minh Pham, Duc Duy Le, Thi Kieu Chinh Nguyen, Thi Duyen Ngo and Thanh Ha Le*
Session 08: Electronics Circuits and Systems		**ID**	**Paper titles**
1	Venue: Conference Room ULIS-SUNWAH (2nd floor), Jonathan KS Choi center 10h40-12h00 Chairs: 1. Dr. Duy-Anh Nguyen (University of Transport and Communications, Vietnam) 2. Dr. Manh-Hiep Dao (VNU Information Technology Institute, Vietnam) Secretary: Mr. Duc-Trung Hoang	**77**	**An Efficient Recharging Solution for IoT Mobile Robot in Home Security System** *Pham Thanh Nam, Duc-Binh Nguyen and Mai Duc Thọ*
2		**100**	**An Improved RL-based Routing Algorithm for UAVs in Smart Cities** *Nam Vi Hoai, Quy Vu Khanh, Hue Chu Thi Minh and Linh Nguyen Tuan*
3		**170**	**A Low-Cost Convolutional Neural Network Accelerator for Brain Tumor Detection using High-Level Synthesis at the Edge** *Thien-Duy Ho, Huyen-Trang Nguyen-Thi, Duy-Hieu Bui and Xuan-Tu Tran*
4		**213**	**A Compact Design of Multi-Port Circularly Polarized Wideband Antenna for MIMO Systems** *Thi Khanh Dieu Nguyen, Noi Truong-Quang, Anh Tran-Tuan and Kien Pham-Xuan*

PARALLEL SESSIONS 1			
Session 09: AI-Driven Decision Support Systems for Biomedical Applications		**ID**	**Paper titles**
1	Venue: Room 611, Building E3, Vietnam National University, Hanoi 10h40-12h00 Chairs: 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Dr. Duc-Tho Mai (Academy of Cryptography Techniques, Vietnam) Secretary: Mr. Hoang-Giang Le	**33**	**A Multi-Threaded Framework for Integrating Knowledge into a Biomedical Knowledge Graph** *Le Van Thanh, Cu Kim Long, Duong Vu Tuan Minh, Nguyen Hai Anh, Tran Minh Dung and Pham Van Hai*
2		**46**	**Feature Fusion of Deep CNNs for Cervical Cell Classification using a Customized CervicalNet with MONAI Framework** *Khanh Tran, Van-Cap Pham and Chi-Cuong Nghiem*
3		**47**	**A Comparative Study of Medical Preprocessing Techniques for Transfer Learning in Cervical Cytology Classification** *Khanh Tran, Van-Cap Pham and Chi-Cuong Nghiem*
4		**81**	**Towards Real-Time Medical Image Segmentation via Axial Channel Attention and Multi-Scale Contextual Mamba** *Quang-Huy Nguyen, Van Quang Nguyen, Van-Truong Pham and Thi-Thao Tran*
9h00 – 12h00 **Venue**: Room 203, Building D2, Vietnam National University, Hanoi		**Seminar: Fostering Cooperation to Promote Training and Research in the Semiconductor field** *The Alliance to support training, research and supply high-quality human resources for the semiconductor industry*	*Link for registration*

PARALLEL SESSIONS 1	
12h00-13h00	**LUNCH TIME** *Lach Ca Lach Cach Restaurant, 5th floor Indochina Plaza Hanoi*
PLENARY SESSION 2 **Venue: Jonathan KS. Choi Cultural Centre, Vietnam National University, Hanoi** *Chairs: Dr. Duy-Hieu Bui and Dr. Quang-Khanh Duong*	
13h00-13h40	**Keynote Speech 4:** Pervasive Intelligence: Evolving from Moore's Law to the Era of Language Model Scaling *Prof. Dr. Oscal Tzyh-Chiang Chen, National Chung Cheng University, Taiwan*
13h40-14h15	**Invited Speeches** **Invited Speech:** How to Design Effective On-Chip ESD Protection Circuits with Minimum Impacts to the Core Circuits *Dr. Qiang Cui, Zhejiang University, China*
14h15-14h30	**COFFEE BREAK**

PARALLEL SESSIONS 2			
Session 10: Modern Technologies for Applied AI		**ID**	**Paper titles**
1	Venue: ULIS-SUNWAH Hall, Jonathan KS Choi center 14h30-16h00 Chairs: 1. Dr. Huy-Thong Pham (Hanoi University of Industry, Vietnam) 2. Dr. Duc-Tho Mai (Academy of Cryptography Techniques, Vietnam) Secretary: Mr. Tam Ngo Duc	**67**	**A Comprehensive Survey on AI-based Student Behavior Recognition in Classrooms: Datasets, Models, and Practi-cal Challenges** *Le Truong Giang, Dang Trong Hop, Nguyen Van Bien, Le Thi Phuong, Nguyen Van Luong and Phung The Huan*
2		**69**	**Personalized Music Recommendation through Speech Emotion Detection with 2D CNN-LSTM Architecture** *Vi Loi Truong, Toan Song Tran, Tri Minh Duong, Thang Viet Ha, Vinh Phong Vo and Thai Duy Pham*
3		**72**	**Analyzing the Impact of Virtualization on Cloud Infrastructure: Combined approach of UTAUT2 and TOE** *Thuong Hong Thi Nguyen and Vi Loi Truong*
4		**74**	**A Lightweight Hybrid Approach for Surface Defect Detection in Industrial RAW Images Using HOG and SVM** *Nguyen Van Son, Nguyen Thi Hien Y, Hoang Thi Canh, Nguyen Hai Minh and Phung The Huan*
5		**82**	**A Few-Shot Learning Approach for Palmprint Recognition Using a Multi-State Attention Fusion Network** *Phuong Nam Nguyen, Van Danh Le, Thi Thao Tran and Van Truong Pham*
Session 11: Modern Technologies for Applied AI		**ID**	**Paper titles**

PARALLEL SESSIONS 2			
1	Venue: Room Hanoi (2nd floor), Jonathan KS Choi center 14h30-16h00 Chairs: 1. Dr. Manh-Hung Ha (VNU International School, Vietnam) 2. Dr. The-Huan Phung (Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Duy-Hoang Bui	**83**	**Optimizing Stacking Models for Accurate Customer Churn Prediction in Telecommunications** *Van Nguyen Thi and Binh Ngo Van*
2		**85**	**Robust Quishing Detection on Low-Resolution QR Codes via Feature Learning and Residual CNNs** *Phuc Hao Do, Huu Phu Le, Long Nguyen Vo Hoang and Van Nguyen Nang Hung*
3		**93**	**An Effective Approach for Android Malware Detection Based on Intelligent Feature Extraction and Ensemble Learning** *Vu Minh Manh, Cho Do Xuan and Nguyen Thi Khanh Van*
4		**95**	**Annotation-Free Skin Lesion Segmentation via U²-Net Guided SAM and Supervised UNet Learning** *Dung Nguyen Ngoc and Thang Doan Van*
5		**103**	**A Systematic Review of Generative AI Applications in UI/UX Design for Mobile Applications** *Ngoc Phuong Doan, Thi Thu Hang Nguyen, Xuan Kien Pham, The Vinh Nguyen and Thi Thuong Pham*
Session 12: Digital Economics & Management		**ID**	**Paper titles**
1	Venue: Room 607, Building E3, Vietnam National University,	**107**	**Design and implementation of a digital business support system for local enterprises: From training to execution**

PARALLEL SESSIONS 2			
	Hanoi 14h30-16h00 Chairs: 1. Dr. The-Vinh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) 2. Assoc. Prof. Dr. Van-Nui Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Phu-Loc Nguyen		*Le Duy Tran, Xuan Nam Vu, Thi Thanh Phuong Pham and Thi Viet Phuong Truong*
2		**116**	**Analysis of Vietnamese consumers' intentions to participate in green commerce** *Xuan-Nam Vu and Thi-Quyen Do*
3		**145**	**Gold Price Forecasting in Vietnam: Leveraging Machine Learning Techniques** *Xuan Nam Vu, Le Duy Hung Nguyen, Anh Duong Tran, Duy Quy Dang and Cong Doan Truong*
4		**167**	**Modeling the Impact of Technology as a Moderator in the Nexus of Government Regulation, Knowledge Management, and ERP in Semiconductor Companies** *James Louie Meneses, Roland Emerson Mabuting, Jerico Amago, Agnes Aviles and Duc-Binh Nguyen*
5		**168**	**Evaluating the Impact of Service Quality on Customer Satisfaction and Loyalty in an Application Service Provider: A Structural Equation Modeling Approach** *James Louie Meneses, Gervin Espinosa, Roland Emerson Mabuting, Jerico Amago, Reyjieza Dequina and Duc-Binh Nguyen*
Session 13: Big data and AI in life science		**ID**	**Paper titles**

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<tr><th colspan="4">PARALLEL SESSIONS 2</th></tr>
<tr><td>1</td><td rowspan="5">Venue: Room 603, Building E3, Vietnam National University, Hanoi
14h30-16h00
1. Assoc. Prof. Minh-Trien Pham (VNU University of Engineering and Technology, Vietnam)
2. Cuong Nguyen (Institute of Information Technology, Vietnam Academy of Science and Technology, Vietnam)
Secretary:
Mr. Tu Chu Pham Dinh</td><td>210</td><td>Genome-wide identification and characterization of con-served motifs and predicted structures in the Shaker gene family of garlic (Allium sativum)
Tuong Manh Ngo, Huong Thi Thanh Nguyen, Xuan Thanh Nguyen, Ha Duc Chu and Phi Bang Cao</td></tr>
<tr><td>2</td><td>211</td><td>Investigation of categorization and expression patterns of the SHAKER family of potassium channels in garlic
Huong Thi Thanh Nguyen, Phi Bang Cao, Ha Duc Chu and Manh Tuong Ngo</td></tr>
<tr><td>3</td><td>223</td><td>Evaluating the Predictive Performance of LSTM and Bi-LSTM Models in Financial Time Series Forecasting
Do Dinh Cuong, Tran Quang Quy, Nguyen Ha Cong Ly and Tran Thi Ngoc Linh</td></tr>
<tr><td>4</td><td>257</td><td>Survey of the β-galactosidase gene family in mango: Ge-nome-wide identification, structural characterization, and motif analysis
Toan Van Nguyen, Hong Viet La, Ha Duc Chu and Phi Bang Cao</td></tr>
<tr><td>5</td><td>289</td><td>Comprehensive identification, structural annotation, and motif characterization of the GATA transcription factors in Catharanthus roseus
Anh Duc Nguyen, Huyen Thi Thanh Tran, Ha Duc Chu and Phi Bang Cao</td></tr>
<tr><td colspan="2">Session 14: Mechatronics and Automation</td><td>ID</td><td>Paper titles</td></tr>
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PARALLEL SESSIONS 2			
1	Venue: Room 505, Building E3, Vietnam National University, Hanoi 14h30-16h00 Chairs: 1. Assoc. Prof. Minh-Duc Duong (Hanoi University of Science and Technology, Vietnam) 2. Assoc. Prof. Tung-Lam Nguyen (Hanoi University of Science and Technology, Vietnam) Secretary: Mr. Manh-Quan Hoang	**94**	**Adaptive Sliding Mode Control for Quadcopter Stability and Trajectory Tracking under External Disturbances.** *Cuong Nguyen*
2		**113**	**Regulating Humidity and Temperature Conditions of Oyster Mushroom Cultivation Based on Markov Decision Process** *Thi Xuan Hanh Vo, Minh Huan Vo, Toai Tran Kim, Chi Khang Khuu, Van Minh Nguyen and Thanh Truyen Nguyen*
3		**142**	**Adaptive Tracking Control with Function Estimator for Wheeled Mobile Robots** *Mai Do, Nam Nguyen, Giap Ha, Oanh Vu and Tung Vu*
4		**146**	**Monitoring and detecting the health status of mustard greens using YOLOv8 model** *Giang Le Hoang, Thuan Phung Van, Quan Hoang Manh, Hiep Dao Trong, Hoa Tran Quang and Khanh Duong Quang*
5		**79**	**Adaptive-PD and Model Predictive Control for UAV Quadcopter Trajectory Tracking** *Tuan Anh Than Ngoc, Xuan Minh Dinh, Quang Quan Do, Ngoc Thanh Ta and Xuan Hai Le*
Session 15: AI-powered Vision and Language Models		**ID**	**Paper titles**

PARALLEL SESSIONS 2			
1	Venue: Room 405, Building E3, Vietnam National University, Hanoi 14h30-16h00 Chairs: 1. Dr. Duc-Trong Le (VNU University of Engineering and Technology, Vietnam) 2. Dr. Duc-Binh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Hong-Quan Phung	**31**	**Q-ClassCap: An End-to-End Structured Captioning Model for Classroom Activity Videos** *Nguyen Dinh Quy, Tran Manh Tuan and Le Hoang Son*
2		**108**	**Enhancing Zero-Shot Learning with Non-Linear Visual-Semantic Mapping and Dual Loss** *Thi Thuy Le, Hung Cuong Tran and Dinh Cong Nguyen*
3		**162**	**A Parameter-Adaptive Heuristic for Accelerating Split Bregman Algorithm in Image Recovery** *Dung Nguyen Dinh and Chung Le Van*
4		**163**	**A Comparative Study of Machine Learning Models for Cheating Detection in Online Learning** *Pham-Duc Tho, Bui-Thuy Duong and Nguyen-Anh Tu*
5		**173**	**A Novel Fine-Tuning Method for Enhancing Large Language Model Performance on Low-Resource Vietnamese Medical Question-Answering Datasets** *Thang Nguyen Xuan, Bao Nguyen Gia, Nhi Vu Hoai and Van Tran Cam*
Session 16: Multimedia		**ID**	**Paper titles**
1	Venue: Room 612, Building E3, Vietnam National University, Hanoi	**229**	**An Iterative Multimedia Production Pipeline for Academic Program Promotions: A Case Study Using 2D, 3D, and Live-Action Animation** *John Rover Sinag, Seth Louise Jarasa, Patrick Ivan Lustado, Hans Balquiedra and Duc-Binh Nguyen*

PARALLEL SESSIONS 2			
2	14h30-16h00 Chairs: 1. Hai-Minh Nguyen (Thai Nguyen University of Information and Communication Technology) 2. Prof. Sinku Kumar (Singh Swami Ramanand Teerth Marathwada University) Secretary: Mr. Trong-Minh Le	**235**	**Cocktail Party Effect with Fine-Tuning Multi-Head Self-Attention** *Ha Minh Tan, Vo Ngoc Tan, Tran Thi Diem, Duyen Nguyen Thi, Duc-Quang Vu and Trung-Nghia Phung*
3		**297**	**LISINet: A lightweight framework for Word-Level Sign Language** *Ha Manh Dung, To Huu Nguyen and Duc-Quang Vu*
4		**357**	**Development and Assessment of Virtual Reality (VR) in Phytotherapy Practice** *Lam Pham Xuan, Thao Pham, Quan Pham Minh, Quang Nguyen Minh, Vi Tran Thi Tuong, Xuan Nguyen Thi, Minh Pham Phuc, Khang Mai Duc, Huong Nguyen Thanh, Ngoc Tong Thi Minh and Ly Pham Thi Huong*
Session 17: Electronics Circuits and Systems		**ID**	**Paper titles**
1	Venue: Conference Room ULIS-SUNWAH (2nd floor), Jonathan KS Choi center 14h30-16h00 Chairs: 1. Dr. Duy-Anh Nguyen (University of Transport and Communications, Vietnam)	**245**	**Development of a Human Activity Recognition and Safety Monitoring System for Indoor Rescue Personnel Based on IMU-LiDAR Integration** *Viet-Hoan Bui, To-Hieu Dao, Hai Yen Hoang Thi and Pham Quang Huy*
2		**256**	**Digital Modulation Classification Based on Feature Selection Using the Equilibrium Optimizer Algorithm** *Duc-Thai Vu, Thanh-Hao Duong, Tra-Ly Bui-Thi and Thu-Trang Le*
3		**266**	**Environmental Fingerprint-Based Access Control for Edge-AI Inference on FPGA** *Phuc Tran-Vinh and Cuong Pham-Quoc*

PARALLEL SESSIONS 2			
4	2. Dr. Manh-Hiep Dao (VNU Information Technology Institute, Vietnam) Secretary: Mr. Duc-Trung Hoang	**359**	**Enhancing 5G O-RAN Security with open-source xApps: Proactive Slice-Based Isolation of Compromised User** *Linh Le Phuong, Tan Nguyen Ngoc, Duong Nguyen Thai and Thu Dao Minh*
Session 18: AI-Driven Decision Support Systems for Biomedical Applications		**ID**	**Paper titles**
1	Venue: Room 611, Building E3, Vietnam National University, Hanoi 14h30-16h00 Chairs: 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Dr. Minh-Tuan Le (Trade Union University, Vietnam) Secretary: Mr. Hoang-Giang Le	**126**	**AMMAD: A Multimodal Approach for Disease Diagnosis with Symptoms and Tests** *Tran Nguyen Minh Thu, Thanh Ma, Viet Chau Tran, Cong-Minh Nguyen and Tien-Dao Luu*
2		**131**	**Neuro-Symbolic Attention Modulation in Biomedical QA via Signal Algebra-Augmented LLMs** *Ha Yeon Sohn, Satyam Mishra and Vishwanath Bijalwan*
3		**143**	**Analysis of Radiomics Features and Application of Interpretable Machine Learning Models in Predicting Lung Nodules on LUNA16 CT Data** *Thi-Bich-Diep Nguyen*
4		**161**	**VIT-Survive: Temporal Patch-Based Survival Analysis of HIV Treatment Dropout Using Longitudinal Data** *Dat Pham Thanh, Duong Nguyen Van, Thanh Tran Tan and Thang Nguyen Truong*

PARALLEL SESSIONS 2			
5		**176**	**A Novel Approach to Real-world Emotion Recognition Using Raw EDA Signals** *Duc Hoang Long Nguyen, Thanh Ha Le and Thi Duyen Ngo*
16h00-16h15	**COFFEE BREAK**		

PARALLEL SESSIONS 3			
Session 19: Modern Technologies for Applied AI		**ID**	**Paper titles**
1	Venue: ULIS-SUNWAH Hall, Jonathan KS Choi center 16h15-18h15 Chairs: 1. Dr. Huy-Thong Pham (Hanoi University of Industry, Vietnam) 2. Dr. Dr. Thi-Hong-Lan Luong (Hanoi University of Industry, Vietnam) Secretary: Mr. Tam Ngo Duc	**106**	**TINYML APPLICATIONS IN WEARABLE DEVICES: A SYSTEMATIC REVIEW AND RESEARCH DIRECTIONS** *Thi Dung Nguyen, Thu Phuong Nguyen, The Vinh Nguyen and Thi Thuong Pham*
2		**109**	**MST-Net: A Multi-Scale Transformer Network with Price-based Sinusoidal Encoding for Vietnam Stock Price Prediction** *Thi Kim Ngan Tran, Ha Dung Nguyen and Thanh Binh Nguyen*
3		**129**	**AeroSenseNet: When Physics Meets Transformers for Predicting Aircraft Maneuvers from Jet Engine Sensors** *Sungjoon Cho, Satyam Mishra, Vishwanath Bijalwan and Anchit Bijalwan*
4		**130**	**A Framework of Machine Learning models for IoT Device Control in Smart Classrooms** *Thi Van Anh Nguyen, Hoang Giang Le, Pham Dinh Tu Chu and Quang Khanh Duong*

PARALLEL SESSIONS 3			
5		144	**Generating test script from test procedure to evaluate the quality of graphical user interface for Web applications** *Duc-Anh Nguyen, Sang Do Minh and Viet-Anh Nguyen*
6		171	**Chain of Thought Guided Fine-Tuning of Large Language Models for Rubric-Assisted Automated Essay Grading** *Thang Nguyen Xuan, Tam Nguyen Thanh, Vinh Ho Viet and Trang Dang Quynh*
Session 20: Modern Technologies for Applied AI		**ID**	**Paper titles**
1	Venue: Room Hanoi (2nd floor), Jonathan KS Choi center 16h15-18h15 Chairs: 1. Dr. Manh-Hung Ha (VNU International School, Vietnam) 2. The-Huan Phung (Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Duy-Hoang Bui	172	**AirGraphMK: Hybrid Graph-LSTM Model for Spatiotemporal Air Pollution Prediction** *Thanh Ma, Viet-Chau Tran, Kim Tran, Thanh-Nghi Do and Huu Hoa Nguyen*
2		179	**Real-Time Vibration Monitoring and Anomaly Detection Using Autoencoder and Wireless IoT Sensor Node** *Nguyen Dinh Quy and Le Ba Danh*
3		181	**Explainable AI-Based Approach for Automated Blood Cell Classification** *Ngoc-Hoang-Quyen Nguyen and Anh-Cang Phan*
4		183	**EnXAI-Net: Enhancing Diagnostic Accuracy in Alzheimer's Disease via Explainable Ensemble Learning Model** *Khac-Tuong Nguyen and Anh-Cang Phan*
5		185	**GAUSSIAN PROCESS BAYESIAN REGRESSION AND PCA FRAMEWORK FOR RELIABILITY EVALUATION OF H_2S GAS SENSORS BASED ON WO_3/RGO NANOCOMPOSITES** *Sy Nhien Dao, Quang Dat Do, Thi Thu Ha Nguyen, Thi Tuyet Bui and Cao Minh Hoang*

PARALLEL SESSIONS 3			
6		**198**	**ViRanker: A BGE-M3 & Blockwise Parallel Transformer Cross-Encoder for Vietnamese Reranking** *Phuong-Nam Dang, Kieu-Linh Nguyen and Thanh-Hieu Pham*
Session 21: Digital Economics & Management		**ID**	**Paper titles**
1	Venue: Room 607, Building E3, Vietnam National University, Hanoi 16h15-18h15 Chairs: 1. The-Vinh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) 2. Cong-Doan Truong (VNU International School, Vietnam) Secretary: Mr. Phu-Loc Nguyen	**184**	**A gravity model for exploring socio-cultural factors affecting Vietnam's trade potential** *Thi Van Giang Phan and Thi Hong An Duong*
2		**261**	**The Influence of Digital Competence on Attitudes Toward Artificial Intelligence and Its Impact on the Readiness for Digital Employment Among E-Commerce Students: A Case Study at the Thai Nguyen University of Information and Communication Technology** *Trieu Tuan Le*
3		**300**	**The Impact of Social Media on Information Security and Mental Health in University Students: A Case Study from Hanoi** *Xuan Yem Nguyen, Anh Tuan Hoang, Tuan Dung Pham, Minh Duc Le, Duc Binh Trinh and Thien Nhi Le*
4		**369**	**Neural Network-Driven Digital Platforms for Managing Social and Labor Relations in the Digital Economy of Megacities** *Andrei Somov, Olga Ergunova and Irina Karabulatova*
5		**370**	**Enhancing Speaking Skills through AI and Blended Learning in English for Information Technology: A Case Study with First-Year IT Students at Thai Nguyen University of Information and Communication Technology** *Thi Hong An Duong and Thi Van Giang Phan*
Session 22: Big data and AI in life science		**ID**	**Paper titles**

PARALLEL SESSIONS 3			
1	Venue: Room 603, Building E3, Vietnam National University, Hanoi 16h15-18h15 Chairs: 1. Dr. Duc-Ha Chu (VNU University of Engineering and Technology, Vietnam) 2. Cuong Nguyen (Institute of Information Technology, Vietnam Academy of Science and Technology, Vietnam) Secretary: Mr. Tu Chu Pham Dinh	**197**	**A Novel Combinative Physical-geometric Appliance Feature for NILM Algorithm based on V-I Trajectory** *Nam Truong Hai, Hieu Dinh Viet and An Nguyen Ngọc*
2		**281**	**TLD46k: A Benchmark for Tomato Leaf Disease Detection** *Trung Kien Pham, Khanh Le Nguyen and Tran Hiep Dinh*
3		**283**	**A Redundancy-Free Object-Aware Window Slicing Algorithm for Insect Detection** *Van Quyet Nguyen, Quang Hung Ha, Quang Huy Vuong, Minh-Trung Vu, Trong-Minh Hoang and Minh Trien Pham*
4		**303**	**EdgeUNetV2: Fast and Efficient Semantic Segmenta-tion for Rice Field Imagery** *Hoang-Thang Tran, Truong-Son Nguyen, Trinh Truong Phung, Khanh Le Nguyen and Minh Trien Pham*
4		**325**	**Using data collected from the Orbiting Carbon Observatory-2 (OCO-2) to estimate CO2 emission concentrations over rice fields in Vietnam** *Quang Khai Le, Ngoc Anh Nguyen Thi, Chau Thuy Pham, Thi Duyen Nguyen and Xuan Canh Cao*
6		**326**	**ECA-CBAM-MobileNetV3: An Enhanced Model for Rice Leaf Disease Classification** *Thi Kim Cuc Nguyen, Quang Hung Ha, Le Khanh Nguyen, Trong-Minh Hoang and Minh Trien Pham*
Session 23: Mechatronics and Automation		**ID**	**Paper titles**
1	Venue: Room 505, Building E3, Vietnam National University, Hanoi	**182**	**A Robust Hybrid Architecture for Fish Classification and Disease Detection in Turbid Aquaculture Environments** *Quang Doan Hong, Hoan Nguyen Quang, Truyen Nguyen The, Ban Pham Vu and Duc Anh Duong*

PARALLEL SESSIONS 3			
2	16h15-18h15 Chairs: 1. Assoc. Prof. Minh-Duc Duong (Hanoi University of Science and Technology, Vietnam) 2. Assoc. Prof. Tung-Lam Nguyen (Hanoi University of Science and Technology, Vietnam) Secretary: Mr. Manh-Quan Hoang	**195**	**CGOD-YOLOv5: An Improved YOLO Algorithm for Landing Marker Detection in Drones** *Huy Tran Dang, Cuong Ta Viet and Quan Nguyen Hoang*
3		**239**	**Distributed Consensus of Flexible-Link Parallel Planar Manipulators** *Quang-Hieu Do, Duc-Minh Ho, Quang-Hoang Nguyen and Quoc Tran Van*
4		**246**	**Virtual Leader-Based Distributed Model Predictive Control with Sequential Quadratic Programming for V-Formation Navigation in Static Obstacle Environments** *Duong Phu Tuan, Nguyen Quang Vinh, Nguyen Tuan Minh and Le Van Uy*
5		**249**	**Model Order Reduction for Multi-Agent Robotic Arm Systems Using Positive-Real and Balanced Truncation Methods** *Von-Dim Nguyen, Tuyet-Ngan Le-Thi, Thi-Dung Nguyen, Thanh-Hao Duong, Duc-Thai Vu and Thanh-Tung Nguyen*
6		**262**	**Integrated Tracking of Moving Targets Using Mobile Robots with Pan/Tilt Stereo Camera Systems** *Van-Chung Le, Von-Dim Nguyen, Thuy-Dung Nguyen and Thanh-Tung Nguyen*
Session 24: AI-powered Vision and Language Models		**ID**	**Paper titles**
1	Venue: Room 405, Building E3, Vietnam National University, Hanoi 16h15-18h15 Chairs: 1. Dr. Duc-Trong Le (VNU University of Engineering and Technology, Vietnam)	**212**	**Development of an Emergency Event Detection API Using YOLOv8 for Security Camera Systems** *Duc-Binh Nguyen, Ngoc-Doanh Nguyen, Van-Ninh Ha, Xuan-Truong Quach, Quang-Quy Tran and Huy-Huy Ngo*
2		**217**	**Beyond Monolithic LLMs: A Hybrid Framework for Robust Natural Language to Data Visualization Generation** *Thi Minh-Hue Luong, The-Vinh Nguyen, Duc-Quang Vu, Van-Viet Nguyen, Huu-Khanh Nguyen, Kim-Son Nguyen and Xuan-Truong Quach*

PARALLEL SESSIONS 3			
3	2. Dr. Hai-Minh Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Hong-Quan Phung	**218**	**Fine-tuning Tiny Language Models for Legal Question Answering: A comparative study of Gemma 2, Qwen 2.5 and Llama 3.2** *Huu-Khanh Nguyen, Cong Nguyen Huu, Van-Viet Nguyen, Thi Minh-Hue Luong, Kim-Son Nguyen, Dinh-Cuong Do and Vinh T. Nguyen*
4		**222**	**Pioneering a DeepSeek R1-Generated UML Dataset and an Automated Multimodal Visual Validation Framework** *Van-Viet Nguyen, Huu-Khanh Nguyen, Kim-Son Nguyen, Thi Minh-Hue Luong, The-Vinh Nguyen, Huu-Cong Nguyen and Duc-Quang Vu*
5		**225**	**A MULTIMODAL AI FRAMEWORK FOR CONTEXT-AWARE LANGUAGE LEARNING: INTEGRATING VISION TRANSFORMER AND GPT-2** *Tran Quang Quy, Quach Xuan Truong, Nguyen Ke Luong, Ho Thi Tuyen, Ha Van Tho and Nguyen The Phat*
Session 25: Mathematical Foundations in Informatics		**ID**	**Paper titles**
1	Venue: Room 612, Building E3, Vietnam National University, Hanoi 16h15-18h15 Chairs: 1. Assoc. Dr. Van-Nui Nguyen (Thai Nguyen University of Information and Communication Technology, Vietnam)	**16**	**An Iterative Method for Solving Second-Order Nonlinear Differential Systems with High-Order Accuracy** *Vu Vinh Quang, Nguyen Thanh Huong and Lai Van Trung*
2		**53**	**Cell Type Inference Using Large Language Models in Single-Cell Data Analysis** *Anh Duy Tran, Khoi Nguyen, Nam Sy Vo, Phi Bya and Tin Nguyen*
2		**62**	**Optimizing Multipath Route Discovery in AOMDV Using Gossip-based Flooding** *Van Dien Vu and Dinh Luc Do*
3		**132**	**Attention Is a Functor: Enforcing Categorical Structure in Transformers** *Hyun Kim, Satyam Mishra, Duc Tan Tran and Vishwanath Bijalwan*

PARALLEL SESSIONS 3			
4	2. Dr. Xuan-Truong Quach (Thai Nguyen University of Information and Communication Technology, Vietnam) Secretary: Mr. Trong-Minh Le	**318**	**Extracting Linguistic Rules from Learning Data Using a Combination of Clustering and Association Rule Mining** *Lan Pham Thi and Hien Doan Thu*
5		**324**	**Green covering problem: A heuristic approach** *Nguyen Ha Cong Ly, Tran Quang Quy, Quach Xuan Truong, Lieu Uyen Nhi, Thach Thanh Tam and Huynh Phuc Khang*
Session 26: Bioinformatics and Computational Biology		**ID**	**Paper titles**
1	Venue: Conference Room ULIS-SUNWAH (2nd floor), Jonathan KS Choi center 16h15-18h15 Chairs: 1. Dr. Sy-Nam Vo (Vingroup Big Data Institute, Vietnam) 2. Assoc. Prof. Dang-Hung Tran (Hanoi University of Industry, Vietnam) Secretary: Mr. Duc-Trung Hoang	**99**	**HGAT-CL: A Heterogeneous Graph-based Dual-view Contrastive Learning Method for Drug–Disease Association Prediction** *Thi Huong Lan Nguyen, Van Tinh Nguyen and Dang Hung Tran*
2		**118**	**FMN-SSL: A Semi-supervised Approach for Lung Tumor Segmentation** *Thanh-Son Nguyen, Dinh-Minh Vu and Duc-Luu Nguyen*
3		**253**	**CLGPT-Kcr: A GPT-2-Based Framework for Accurate Prediction of Lysine Crotonylation Sites** *Thi-Xuan Tran, Hai-Thanh Tran, Thi-Tuyen Ho, Thi-Tuyen Nguyen, Nguyen Quoc Khanh Le and Van-Nui Nguyen*
4		**312**	**Integrating Protein Language Models and Deep Learning for Immune Checkpoint Protein Prediction** *Thi-Tuyen Nguyen, Van-Nui Nguyen, Thi-Xuan Tran and Nguyen Quoc Khanh Le*
5		**329**	**Effective Integration and Intensive Pretraining of Graph Neural Networks for Accurate Cancer Driver Gene Prediction** *Thi-Thu Dao, Trung-Nghia Phung, Omer S. Alkhnbashi and Van Dinh Tran*
6		**372**	**A Fuzzy Embedding Multi-View Clustering Model with Co-Representation Learning** *Van-Nui Nguyen, Duc-Thao Nguyen, The-Huan Phung and Van-Nha Pham*

PARALLEL SESSIONS 3			
Session 27: AI-Driven Decision Support Systems for Biomedical Applications and Big data and AI in life science		**ID**	**Paper titles**
1	Venue: Room 611, Building E3, Vietnam National University, Hanoi 16h15-18h15 Chairs: 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Dr. Minh-Tuan Le (Trade Union University, Vietnam) Secretary: Mr. Hoang-Giang Le	**190**	**CFT: A Hybrid Machine Learning Method For Diagnosing The Five Common Thoracic Diseases Based On X-ray Images** *Hoang Viet Tran, Sy Chung Dinh and Ngoc Hung Pham*
2		**201**	**An improvement method for Heterogeneous Tumour assessment using auto threshold determination and weights optimization** *Tran-Chung Dao, Viet-Vu Vu, Duc-Binh Nguyen, Ngoc-Lan Nguyen, Vu-Hai Nguyen and Duy-Minh Nguyen*
3		**338**	**Leveraging Text and Image Information for Ovarian Tumors Segmentation in Ultrasound Images** *Nam-Anh Ta, Van-Anh Ngo, Thi-Loan Pham, Hai Vu, Thi-Lan Le and Thanh-Hai Tran*
4		**353**	**Air Quality Prediction in High-Density Livestock Operations: An Artificial Intelligence Approach to Odor Emission Mitigation** *Ngoc Tan Nguyen, Thai Duong Nguyen, Hoang Tho Nguyen and Chau Thuy Pham*
5		**368**	**Designing and evaluating multi-context matching algorithms for ride-hailing systems** *Duc Duong Lam, Xuan Bach Ngo and Van Hai Pham*
19h00		**GALA DINNER** Mövenpick Living West Hanoi, 21 Duy Tan Street, Cau Giay, Hanoi *(Shuttle buses will pick you up in front of Jonathan KS. Choi Cultural Centre)*	

DAY 2: FRIDAY, NOVEMBER 28, 2025			
PARALLEL SESSIONS 4			
Session 28: Digital Economics & Management		**ID**	**Paper titles**
1	Venue: Room 603, Building E3, Vietnam National University, Hanoi 8h30-10h15 Chairs: 1. Dr. Trung-Tuan Nguyen (National Economics University, Vietnam) 2. Dr. Giap Cu Nguyen (Thuongmai University, Vietnam) Secretary: Mr. Phu-Loc Nguyen	**89**	**Students' Ethical Perceptions and Behavior Toward AI in Marketing** *Thuy Nguyen and Luan Nguyen*
2		**120**	**Unlocking E-Wallet Potential in Emerging E-Commerce: Region-Based Evidence from Vietnam's Small Online Stores** *Uyen Vu, Luan Nguyen, Giang Nguyen and Tran Luu*
3		**133**	**NeuralDMD vs Transformers: A Spectral Benchmark for Economic Signal Forecasting** *Gia Bach, Satyam Mishra, Duc Tan Tran and Vishwanath Bijalwan*
4		**149**	**Promoting Environmental Awareness Through Digital Campaigns: The Role of Social E-Commerce in Shaping Student Behavior** *Duy Le and Luan Nguyen*
5		**150**	**Enhancing Higher Education through AI Tools: An Empirical Study on Learning Outcomes and Experiences of FPT University Students in Alignment with Sustainable Development Goal 4** *Tien Huynh and Luan Nguyen*
6		**169**	**Promoting Environmental Awareness Through Digital Campaigns: The Role of Social E-Commerce in Shaping Student Behavior** *Tung Le and Luan Nguyen*

7		**232**	**Scalable and Fair Federated Learning for Heterogeneous Devices via Cluster-Based Optimization** *Hoang Quang Anh, Dao Thi Thanh, Bui Dinh Chien, Tran Van Viet and Nguyen Dinh Manh Linh*
Session 29: Mechatronics and Automation		**ID**	**Paper titles**
1	Venue: Room 505, Building E3, Vietnam National University, Hanoi 8h30-10h15 Chairs: 1. Prof. Peter Hubinsky (Slovak University of Technology, Bratislava, Slovakia) 2. Assoc. Prof. Quy-Thinh Dao (Hanoi University of Science and Technology, Vietnam) Secretary: Mr. Manh-Quan Hoang	**263**	**Tracking Control Method based Forward and Inverse Kinematic Approaches for Parallel Robots** *Duc Hieu Nguyen, Tuan Anh Bui, Ngoc Thanh Pham, Duy Hoang, Ngoc Linh Nguyen, Xuan Hai Le, Thanh Tien Do and Dinh Thai Kim*
2		**288**	**Online Disturbance-Compensated Adaptive Sliding Mode Control Using Wavelet Neural Networks for a Six-Degree-of-Freedom Industrial Robotic Manipulator** *Van Chuong Le, Van Du Phan, Van Nam Dinh, Dinh Tu Duong, Sy Phuong Ho, Thai Son Dang, Hung Cuong Ta, Van Vy Phan and Dat Quy Thai*
3		**298**	**RBF Neural Network-based Adaptive Sliding Mode Control for Trajectory Tracking in Sloshing Systems** *Duc Thanh Cao, Quang Huy Nguyen, Dang Quang Bui, Danh Huy Nguyen, Minh Duc Duong and Tung Lam Nguyen*
4		**322**	**Lyapunov-Based Model Predictive Tracking Control for Autonomous Six-Wheel- Steering /Six-Wheel- Drive Vehi-cles in Lane Changing Maneuvers** *Tran Dang Khoa, Do Dan Truong, Tran Van Dien, Dinh Gia Khiem and Nguyen Tung Lam*
5		**328**	**Density-Weighted Navigation Method for Robots in Crowded Dynamic Environments**

			An Hai Nguyen, Tran Thang Le, Pham Thuc Anh Nguyen and Dang Tuan Nguyen
6		**330**	**Adaptive Intelligent Control for Nonlinear Quadrotor UAVs Subjected to Disturbances** *Nguyen Trung Kien, Dang Vu Tung Lam, Le Thi Thu Uyen, Pham Xuan Tung, Dinh Gia Khiem and Nguyen Tung Lam*
Session 30: AI-powered Vision and Language Models		**ID**	**Paper titles**
1	Venue: Room 405, Building E3, Vietnam National University, Hanoi 8h30-10h15 Chairs: 1. Dr. Ngoc-Tan Nguyen (VNU University of Engineering and Technology, Vietnam) 2. Dr. Trong-Nghia Nguyen (National Economics University, Vietnam) Secretary: Mr. Hong-Quan Phung	**244**	**Enhancing Continual Learning in Vision-Language Models Using Shared Adapter Integrated with Contrastive Learning** *Quynh-Trang Pham Thi, An Duc Vinh Pham, Tri-Thanh Nguyen and Thanh-Hai Dang*
2		**252**	**Expanding Vietnamese SentiWordNet to Improve Performance of Vietnamese Sentiment Analysis Models** *Van-Tan Bui, Hong-Viet Tran and Lam-Quan Tran*
3		**271**	**A Lightweight Deep Learning Framework for License Plate Detection in Complex Environments** *Minh-Phương Vu Thi, Thanh Tien Do, Bao-Tran Le Ha, Ngoc-Thanh Pham, Manh-Hung Ha, Nhung Vuong Thi, Doan Dong Nguyen and Thu-Trang Cao-Thi*
4		**273**	**AMMEX: A Mamba-based Mixture of Experts for Efficient Speaker Verification** *Huyen Nguyen, Tien Tan Nguyen and Thuy Nguyen Thi Thu*
5		**276**	**Continual Speaker Recognition with Compact Representations for Real-World Applications** *Nhat-Minh Hoang, Quan Nguyen, Sy-Hiep Nguyen and Hoang-Dieu Vu*

Session 31: Modern Technologies for Applied AI		ID	Paper titles
1	Venue: Room 612, Building E3, Vietnam National University, Hanoi 8h30-10h15 Chairs: 1. Dr. Hai-Phong Dau (Trade Union University) 2. Dr. Quang-Khanh Duong (VNU Information Technology Institute, Vietnam) Secretary: Mr. Trong-Minh Le	**282**	**A Deep Learning Approach for Vacant Spot Detection in Unstructured Motorcycle Parking Lots** *Bao-An Nguyen, Minh-Hai Le and Quyen Nguyen Thi*
2		**295**	**A Deep Learning-based Web Application for CT reconstruction from X-ray image** *Huu Quang Hoa Nguyen, Quy Dat Tran, Tran Quoc Bao Le, Cong Tran, Cuong Pham, Hang Phuong Nguyen and Thi Tan Tien Nguyen*
3		**299**	**Energy Efficiency Clustering and Routing Algorithm for Wireless Underground Sensor Networks in Multiple Observed Areas Using Fuzzy C-Means** *Thi Mai Ha, Anh Le Tuan, Toan Tran Tuan, Vinh Nguyen Tran Quoc and Lan Luong Thi Hong*
4		**309**	**Trajectory Optimization and Collision Avoidance for Autonomous Underwater Vehicles using a Combination of A* Algorithm and Support Vector Machine (SVM)** *Do Khac Tiep, Nguyen Van Tien and Cao Duc Thanh*
5		**311**	**Enhanced Short-Term Electricity Load Forecasting in Southern Vietnam Using a Rolling SARIMAX Framework with Exogenous Variable Integration** *Long Kieu Hoang, Vinh Nguyen Duc, Hien Vo Thi Ngoc, Kien Le Trung, Hoan Bui Quoc and Huong Bui*
6		**315**	**A Hybrid Blockchain Framework for Secure Multi-Domain Data Protection with Steganography**

			Vu Duc Thai, Dao Thi Thanh, Dao Thanh Tung, Nguyen Duc Thang, Tran Van Viet, Nguyen Dinh Manh Linh and Bui Dinh Chien
10h15-10h30		**COFFEE BREAK**	
PARALLEL SESSIONS 5			
Session 32: Mechatronics and Automation		**ID**	**Paper titles**
1	Venue: Room 505, Building E3, Vietnam National University, Hanoi 10h30-11h30 Chairs: 1. Prof. Peter Hubinsky (Slovak University of Technology, Bratislava, Slovakia) 2. Assoc. Prof. Quy-Thinh Dao (Hanoi University of Science and Technology, Vietnam) Secretary: Mr. Manh-Quan Hoang	**333**	**Comparative Evaluation of TEB and MPC Local Planners for a Mecanum–Wheeled Robot in Confined Indoor Environments** *Dinh Tu Duong, Ngoc Phuoc Le, Sy Phuong Ho, Van Chuong Le, Van Nam Dinh and Van Du Phan*
2		**344**	**Fault-Tolerant Path-Tracking Control for a Four-Wheel Steering Four-Wheel Drive Mobile Robot** *Le Thi Thu Uyen, Duong Dinh Tu, Phan Van Du, Le Van Chuong, Mai The Anh, Nguyen Thanh Tri, Cao Nguyen Tien Dung and Ho Sy Phuong*
3		**358**	**Integration of Computer Vision and NMPC Control for a Pan-Tilt Camera System in PPE Monitoring** *Ke Tien Trinh, Dinh Dat Vu, Thi Minh Tam Le, Ngoc Thang Pham and Khanh Trinh Nguyen*
Session 33: AI-powered Vision and Language Models		**ID**	**Paper titles**
1	Venue: Room 405, Building E3, Vietnam National University,	**316**	**A Dataset of Intraoral Images using Machine Learning for Dental Caries Diagnosis**

	Hanoi 10h30-12h00 Chairs: 1. Dr. Ngoc-Tan Nguyen (VNU University of Engineering and Technology, Vietnam) 2. Dr. Trong-Nghia Nguyen (National Economics University, Vietnam) Secretary: Mr. Hong-Quan Phung		*Nguyen Duc Hoang, Vu Manh Tuan, Nguyen Hong Tan, Nguyen Thi Giang, Truong Quoc Bao and Tran Manh Tuan*
2		**335**	**Memory as a Guide: A Synergistic Approach to Summarizing Long Conversations with LLaMA-3** *Khue Nguyen Vo Ngoc, Ha Manh Hung, Oscal Tzyh-Chiang Chen and Minh-Huy Le*
3		**374**	**Energy Box: Multi Scale Bounding Box Optimization Using Energybased Models** *Dung Thi Dang, Khoi Tan Nguyen and Hiep Xuan Huynh*
4		**375**	**Instance Segmentation in Color Images Using an Energy-Based Model Integrating Sigmoid and Softmax** *Toan Phung Huynh, Tai Van Vo and Hiep Xuan Huynh*
5		**378**	**Energy Distance-Based Motion Pattern Analysis for Functional Rehabilitation Assessment** *Kieu Thuy Thi Phan, Thang Cong Pham and Hiep Xuan Huynh*
Session 34: Modern Technologies for Applied AI		**ID**	**Paper titles**
1	Venue: Room 612, Building E3, Vietnam National University, Hanoi 10h30-12h00 Chairs: 1. Dr. Hai-Phong Dau (Trade Union University) 2. Dr. Giap Cu Nguyen (Thuongmai University,	**319**	**A Dual-Pipeline Approach for Underwater Fish Detection and Segmentation: Integrating YOLOv8 and RF-DETR with SAM 2.1** *Tung Bui and Lan Ngo*
2		**364**	**Enhancing the Efficiency of Lightweight Deep Neural Networks in EEG-Based Emotion Recognition Using Early-Exit Techniques** *Duong Thi Mai Thuong, Nguyen Phuong Huy, Phung Trung Nghia and Nguyen Tuan Anh*

	Vietnam) Secretary: Mr. Trong-Minh Le		
Session 35: Modern Technologies for Applied AI		**ID**	**Paper titles**
1	Venue: Room 603, Building E3, Vietnam National University, Hanoi 13h30-14h00 Chairs: 1. Prof. Vassilis C. Gerogiannis (University of Thessaly, Greece) 2. Assoc. Prof. Andreas Kanavos (Ionian University, Greece) Secretary: Mr. Tu Chu Pham Dinh	**45**	**Factors affecting young people's intention to use digital wedding invitations (DreamAR)** *Linh Van, Luan Nguyen and Quyen Truong*
2		**278**	**Robust Pothole Segmentation Using Multi-Level C2f Integration and Squeeze-and-Excitation Bottlenecks** *Thong Nguyen Phuc Minh and Vinh Nguyen Dinh*
Session 36: AI-Driven Decision Support Systems for Biomedical Applications		**ID**	**Paper titles**
1	Venue: Room 603, Building E3, Vietnam National University, Hanoi 14h00-16h00 Chairs:	**367**	**A deep learning based approach for blood cancer prediction and classification using gene expression analysis** *Ngan Ho Thuy Kim and Thien Phan Xuan*
2		**205**	**Contrastive Self-Supervised Pretraining for Biomedical Text Classification** *Orestis Papadimitriou, Ioannis Karamitsos, Khalil Al-Hussaeni, Vassilis C. Gerogiannis and Manolis Maragoudakis*

3	1. Assoc. Prof. Hoang-Son Le (VNU Information Technology Institute, Vietnam) 2. Dr. Quang-Khanh DuongLe (VNU Information Technology Institute, Vietnam) Secretary: Mr. Tu Chu Pham Dinh	**206**	**A CNN-Based Deep Learning Framework for Microscopic Malaria Cell Image Classification** *Athanasios Kanavos, Ioannis Karamitsos, Khalil Al-Hussaeni, Vassilis C. Gerogiannis and Manolis Maragoudakis*
4		**221**	**Efficient Transformer-Based Protein Folding Using the Performer Architecture** *Nikolaos Roufas, Ioannis Karamitsos, Khalil Al-Hussaeni, Vassilis C. Gerogiannis and Andreas Kanavos*
5		**286**	**The Proposed Classification Model to predict Autism in Toddlers** *Abdulelah Saif*
6		**371**	**Predictive Modeling of Cardiovascular Disease Using Ensemble Machine Learning Techniques** *Gerasimos Vonitsanos, Andreas Kanavos, Khalil Al Hussaeni, Ioannis Karamitsos and Vassilis C. Gerogiannis*

CONTACT INFORMATION OF SECRETARIES

No	Sessions (Nov-27)	Sessions (Nov-28)	Contact information
1	Plenary Session & Keynote Speeches Session 01, Session 10, Session 19: Modern Technologies for Applied AI **Venue**: ULIS-SUNWAH Hall, Jonathan KS Choi center		Secretary: Tam Ngo Duc Email: ngotamairc@gmail.com Mobile: 0766366726
2	Session 02, Session 11, Session 20: Modern Technologies for Applied AI **Venue**: Room Hanoi (2nd floor), Jonathan KS Choi center		Secretary: Duy-Hoang Bui Email: duyhoang.it.2003@gmail.com Mobile: 0357757617
3	Session 03, Session 12, Session 21: Digital Economics & Management **Venue**: Room 607, Building E3, Vietnam National University, Hanoi	Session 28: Digital Economics & Management **Venue**: Room 603, Building E3, Vietnam National University	Secretary: Phu-Loc Nguyen Email: phuloc01.nguyen@gmail.com Mobile: 091177680

4	Session 04, Session 13, Session 22: Big data and AI in life science **Venue**: Room 603, Building E3, Vietnam National University, Hanoi	1. Session 35: Modern Technologies for Applied AI 2. Session 36: AI-Driven Decision Support Systems for Biomedical Applications **Venue**: Room 603, Building E3, Vietnam National University, Hanoi	Secretary: Tu Chu Pham Dinh Email: tucpd0312@vnu.edu.vn Mobile: 0339331285
5	Session 05, Session 14, Session 23: Mechatronics and Automation **Venue**: Room 505, Building E3, Vietnam National University, Hanoi	Session 29, Session 32: Mechatronics and Automation **Venue**: Room 505, Building E3, Vietnam National University, Hanoi	Secretary: Manh-Quan Hoang Email: quanmh16082003@gmail.com Mobile: 0385088559
6	Session 06, Session 15, Session 24: AI-powered Vision and Language Models **Venue**: Room 405, Building E3, Vietnam National University, Hanoi	Session 30, Session 33: AI-powered Vision and Language Models **Venue**: Room 405, Building E3, Vietnam National University, Hanoi	Secretary: Hong-Quan Phung Email: phunghongquan.business@gmail.com Mobile: 0868523869

7	1. Session 07, Session 16: Multimedia 2. Session 25: Mathematical Foundations in Informatics **Venue**: Room 612, Building E3, Vietnam National University, Hanoi	Session 31, Session 34: Modern Technologies for Applied AI **Venue**: Room 612, Building E3, Vietnam National University, Hanoi	Secretary: Trong-Minh Le Email: minh140903@gmail.com Mobile: 0383616596
8	1. Session 08, 17: Electronics Circuits and Systems 2. Session 26: Bioinformatics and Computational Biology, **Venue**: Conference room ULIS-SUNWAH (2nd floor), Jonathan KS Choi center		Secretary: Duc-Trung Hoang Email: ductrunghoang2002@gmail.com Mobile: 0965903621
9	1. Session 09, Session 18: AI-Driven Decision Support Systems for Biomedical Applications 2. Session 27: Big data and AI in life science **Venue**: Room 611, Building E3, Vietnam National University, Hanoi		Secretary: Hoang-Giang Le Email: lehoanggiang03@gmail.com Mobile: 0389258340

NOTES FOR PRESENTERS

- One presentation's maximum time length is 20 minutes, including Q&A.
- Presenters should be in the session room at least 10 minutes in advance. Please contact ICTA 2025 Organizers at ictacontact@ictu.edu.vn or call hotline 0943.138.833 (Mr. Khanh) or 0918. 904.818 (Ms. Trang) if you need any assistance.
- Only listed authors can present their papers. Any presenters not on the list of authors cannot present in any circumstances. The session chair may request the author's identification if necessary.
- Slides for presentation should be submitted to the secretaries in each session **before 25 November, 2025.**
- To download ICTA2025 manuscripts, please scan the QR code:

Information

Venue Map

Please be advised that the participants should take Grab or XanhSM (Android/iOS apps) to go to the venue. In the case you take a traditional taxi, please ask the driver to drop you at **VNU Entrance** (144 Xuan Thuy Road) or **Indochina Plaza Hanoi (IPH) building** (opposite to VNU main entrance).

Digital Resource & Conference Proceedings

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Address: Room 609 Building E3, Vietnam National University, 144 Xuan Thuy, Cau Giay, Hanoi, Vietnam

Gala Dinner

Time: 19:00 November 27, 2025 *(Shuttle bus is available at 18:00 from the conference venue)*

Location: Mövenpick Living West Hanoi

Address: 21 Duy Tan Street, Cau Giay Ward, Hanoi

Shuttle bus will depart from the conference venue at 18:15 to the hotel.

Wi-Fi Access

Venue:	**Jonathan KS Choi Center**	
Access point:	SUNWAH	ULISWIFI-MeetingRoom
Password:	1955@ulis	dhnn1955
Venue:	**Building E3 (VNU)**	
Access point:	ITI-meeting-room	
Password:	VNU@ITI2023	

Transportation

Transportation apps

An easy way to book taxis or motorbikes is the ride-hailing apps such as: Grab, XanhSM (electric vehicle), Be, and Taxi Mai Linh. Grab (and Be) are the Uber of SE Asia and can be used to reserve a car, taxi, or motorbike.

You can download the Grab/Be apps in the app store (Android | Apple) on your phone and register using your phone number, Facebook account, or Google account. It takes no more than 2 minutes to complete the registration. You will need Internet connection to use these apps.

Scan this QR Code to install Grab
on your phone

Scan this QR Code to install XanhSM
on your phone

Traditional taxis

Most taxis have a meter & receipt; the price is about US$0.5 – 0.8/km (12,000 – 18,000 VND/km). We recommend the following taxi brands:

- Mai Linh Taxi: (84 - 24) 38.616.161 – (84 - 4) 38.333.333
- Taxi Group (84 - 24) 38535353 – (84 - 4) 38262626
- G7 Taxi: (84-24) 32 32 32 32

The VNU Information Technology Institute, Vietnam National University, Hanoi

As the first modern university established and one of the two national universities in Vietnam, Vietnam National University (VNU) has undergone various stages of development: the University of Indochina established on May 16, 1906; Vietnam National University (November 1945); the University of Hanoi (June 1956). In December 1993, VNU was reorganized by amalgamating the University of Hanoi with other leading universities in Hanoi. VNU is the largest comprehensive higher education and research center in Vietnam. VNU is entrusted with the task of producing highly qualified human resources and talents for the industrialization and modernization of the country.

The VNU Institute of Information Technology (VNU - ITI), established in 2001, is a member of Vietnam National University, Hanoi. The mission of VNU - ITI is to train high-quality experts in Vietnam, including Doctoral and Master's programs in Information Technology, Computer Science, and Engineering. Besides that, we implement scientific research, application, consulting, and technology transfer. Moreover, we offer a range of advanced courses, including Blockchain, Artificial Intelligence, Data Science, and Digital Transformation, designed to enhance the knowledge/skills of freshers before they enter the workforce.

Currently, the VNU - ITI has three research centers, including: (1) Center for Information Safety and Security (CISS), (2) Center for Integrated Circuits Design and Applications (CICA) and (3) Advanced International Applied Artificial Intelligence Research Center (AIRC). The research groups at ITI have been focusing on the following topics: Data Science; Artificial Intelligence (AI); Virtual/Augmented Reality (VR/AR); Image/Video Processing; Blockchain; Internet of Things (IoT); Embedded Systems; IC and FPGA design, etc. Our products that can be listed here are a Hardware-Software solution for IoT security systems (SECU-IoT), EduNet (Personalized learning), and VNU-Diagnosis: a medical system for diagnosing periapical inflammation from X-ray images. ITI has a wide cooperation network with international universities, research institutes, and enterprises in the USA, France, Germany, Japan, Korea, Malaysia, and other countries. Recently, we have deployed numerous scientific projects in cooperation with international partners and published a significant number of papers in ISI/Scopus journals.

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