

JST: SMART SYSTEMS AND DEVICES

May 2021
Volume 31
Issue 1

Since 1991
No. 150

GENERAL GUIDELINES

1. The Journal of Science and Technology publishes research results with novel scientific and practical values in scientific research, technological transfer and production practice. The work described must not have been published in or submitted to other scientific journals.
2. Manuscript to be submitted must be prepared according to the journal's template.
3. All manuscripts will be double blind reviewed. Authors need to ensure that their manuscripts are prepared in a way that does not give away their identity.
4. The contribution and affiliation of each author in a paper should be clarified. One author should be assigned as the corresponding author.
5. Publications of results from research projects must have permission from the funding agencies and should include conforming acknowledgment.
6. Authors are requested to submit their manuscript and follow the review progress electronically by using the online submission system on the journal's web site.
7. The detail guidelines for authors and reviewers can be consulted on the journal's website.

Journal of Science and Technology
Smart Systems and Devices

Volume 31, Issue 1, May 2021

Deputy Editor-in-Chief

Prof. Dr. Dinh Van Phong
Hanoi University of Science and Technology
Vietnam

Advisory Board

Prof. Dr. Sci. Banh Tien Long - VASE, Vietnam
Prof. Dr. Sci. Dang Vu Minh - VUSTA, Vietnam
Prof. Dr. Sci. Ho Tu Bao - JAIST, Vietnam
Prof. Dr. Sci. Bui Van Ga - Danang University, Vietnam
Assoc. Prof. Dr. Dang Hoai Bac - PETIT, Vietnam
Assoc. Prof. Dr. Mai Thanh Phong - HCMUT, Vietnam
Prof. Dr. Nguyen Duc Chien - HUST, Vietnam
Assoc. Prof. Dr. Huynh Quyet Thang - HUST, Vietnam

Editorial Board

Dr. Ngo Xuan Bach, PTIT, Vietnam
Assoc. Prof. Dr. Huynh Thi Thanh Binh, HUST, Vietnam
Assoc. Prof. Dr. Dao Viet Dung, Griffith University, Australia
Assoc. Prof. Dr. Vo Trung Hung, DNU, Vietnam
Prof. Dr. Kozo Ishizaki, NUT, Japan
Prof. Dr. Hyungsun Kim, Inha University, Korea
Assoc. Prof. Dr. Chi Hieu Le, GRE, UK
Assoc. Prof. Dr. Nguyen Thi Hong Minh, HUST, Vietnam
Assoc. Prof. Dr. Ta Cao Minh, HUST, Vietnam
Prof. Dr. Huynh Van Nam, JAIST, Japan
Assoc. Prof. Dr. Dang The Ngoc, PTIT, Vietnam
Prof. Dr.-Ing. habil. Matthias Uwe Pätzold, UiA, Norway
Assoc. Prof. Dr. Pham Hong Phuc, HUST, Vietnam
Assoc. Prof. Dr. Le Minh Phuong, HCMUT, Vietnam
Prof. Dr. Nguyen Phung Quang, HUST, Vietnam
Prof. Dr. Olivier Sename, Grenoble INP, France
Dr. Mac Thi Thoa, HUST, Vietnam
Assoc. Prof. Dr. Do Duc Thuan, HUST, Vietnam
Assoc. Prof. Dr. Ngo Van Thuyen, HCMUTE, Vietnam
Prof. Dr. Nguyen Duc Toan, HUST, Vietnam
Dr. Matteo Tonezzer, IMEM-CNR, Italy
Assoc. Prof. Dr. Hoang Trang, HCMUT, Vietnam
Assoc. Prof. Dr. Nguyen Huu Trung, HUST, Vietnam
Prof. Dr. Le Anh Tuan, HUST, Vietnam
Prof. Dr. Muriel Visani, ULR, France
Assoc. Prof. Dr. Pham Tran Vu, HCMUT, Vietnam

Supported by

Hanoi University of Science and Technology
Ho Chi Minh City University of Technology
Ho Chi Minh City University of Technology and Education
Posts and Telecommunications Institute of Technology
University of Danang

CONTENTS

1. Web Application DDoS Attack Defense Using Access Correlation 1
Nguyen Thi Thanh Tu^{1,}, Nguyen Thanh Tung¹, Tran Manh Thang²*
¹Hanoi University of Science and Technology
²Authority of Information Security, Ministry of Information and Communications
2. Android Malware Classification Using Deep Learning CNN with Co-occurrence Matrix Feature 9
Le Duc Thuan^{1,2}, Hoang Van Hiep^{1,}, Nguyen Kim Khanh¹*
¹Hanoi University of Science and Technology
²Academy of Cryptography Techniques
3. An Efficient Correlation Power Analysis Attack Using Variational Mode Decomposition 17
Tran Ngoc Quy^{}, Nguyen Hong Quang*
- Academy of Cryptography Techniques
4. Two-Echelon Multi-Trip Multi-Traffic Pickup and Delivery Problem with Time Windows and Synchronization 25
Quang Ngoc Nguyen^{}, Nghia Nguyen Duc, Phuong Khanh Nguyen*
- Hanoi University of Science and Technology
5. Effect of Inertial Measurement Unit on Creating High-Definition 3D Map for Autonomous Vehicle 33
Nang Xuan Ho^{1,2,}, Anh Son Le^{1,2}*
¹Phenikaa Research And Technology Institute, Phenikaa Group,
²Faculty of Vehicle and Energy Engineering, Phenikaa University
6. Probabilistic Locational Marginal Price by Monte Carlo Simulation with Latin Hypercube Sampling and Scenario Reduction Techniques 41
Pham Nang Van - Hanoi University of Science and Technology
7. Adaptive Control for Dual-Arm Robotic System Based on Radial Basis Function Neural Network 50
Luu Thi Hue², Nguyen Pham Thuc Anh^{1,}*
¹Hanoi University of Science and Technology
²Electrical Power University
8. The Development of Mapping, Covering and Control Strategies for a Vacuum Cleaner Robot 59
Thi Thoa Mac^{}, Nguyen Thanh Hung*
- Hanoi University of Science and Technology
9. Fractional-Order Sliding Mode Control of Overhead Cranes 68
Pham Van Trieu, Pham Duc Toan, Hoang Manh Cuong^{}*
- Vietnam Maritime University

10. An Integrated Program to Simulate the Multibody Dynamics of Flapping Flight 76
Anh Tuan Nguyen^{1}, Thanh-Dong Pham¹, Cong-Truong Dinh²,
Jae-Hung Han³*
¹ *Le Quy Don Technical University*
² *Hanoi University of Science and Technology*
³ *Korea Advanced Institute of Science and Technology*
11. A Research on Reducing the Weight of Semi-Trailer Frame Manufactured in Vietnam 84
Truong Dang Viet Thang^{}, Nguyen Trong Hoan, Trinh Minh Hoang*
- Hanoi University of Science and Technology
12. The Calculation of Hydrodynamic Coefficients for Underwater Vehicles Using CFD Simulation 92
Le Quang^{1}, Pham.T.T.Huong¹, Gregoire Galisson²*
¹ *Hanoi University of Science and Technology*
² *Polytech Orlean, Region Centre Val de Loire, France*
13. Hydrostatic Pressure Distribution of Oil Lubrication Film for Internal Gear Motors and Pumps: Solution of Resistance Network and Compare to CFD 100
Pham Trong Hoa - University of Communications and Transport
14. Study and Design of Micro Gripper Driven by Electrothermal V - Shaped Actuator 108
Pham Hong Phuc^{}, Bui Van Dien, Pham Manh Cuong*
- Hanoi University of Science and Technology
15. Fully DSP-Based Control of an Active Voltage Conditioner 116
Vu Thi Ngoc Van, Nguyen Dinh Ngoc, Nguyen Huy Phuong, Vu Hoang Phuong^{},
Nguyen Quang Dich, Tran Trong Minh*
- Hanoi University of Science and Technology
16. Design and Testing Servomotor Prototype 124
B. Nguyen Duc^{1,2,}, V. Tran Tuan¹, C. Nguyen The¹*
¹ *Hanoi University of Science and Technology*
² *National University of Civil Engineering*
17. An Exact Linearization Method for DC-Side Controllers of Z-Source Inverters in Grid-Tied PV System Applications 132
Vu Hoang Phuong^{}, Nguyen Manh Linh*
- Hanoi University of Science and Technology

