

# **2020 - 5th International Conference on Information Technology (InCIT 2020)**

**Chonburi, Thailand  
21-22 October 2020**



**IEEE Catalog Number: CFP20CAH-POD  
ISBN: 978-1-7281-9321-2**

**Copyright © 2020 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP20CAH-POD
ISBN (Print-On-Demand):	978-1-7281-9321-2
ISBN (Online):	978-1-7281-6694-0

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

Keynote	Title	Page
Keynote-I	<b>Machine learning into metaheuristics: A survey and taxonomy of data-driven metaheuristics</b> by Prof. Dr. El-ghazali Talbi	XIV
Keynote-II	<b>The Council of IT Deans of Thailand: Past, Present and Future</b> by Assoc.Prof.Dr.Werasak Kurutach	XV
Keynote-III	<b>The Rise of AIOps: How Data, Machine Learning, and AI Will Transform Performance Monitoring</b> by Jarut Nakaramaleerat	XVI
Keynote-IV	<b>How data science help academics?</b> by Narongsak Dittasagul	XVII

Paper ID	Title	Page
1570644395	<b>Discriminate Raman/GFP Spectra of Yeast Mitochondria Using Convolutional Neural Network</b> by Nungnit Wattanavichean, Jirasin Boonchai, Sasithon Yodthong, Chakkrit Preuksakarn, Thattapon Surasak and Scott CH Huang	1
1570651893	<b>Proposal of a Generic Skills Improvement System in Which Students, Parents and Teachers Cooperate</b> by Koji Kawasaki, Yoshikastsu Kubota, and Yajima Kuniaki	7
1570652654	<b>Environment Monitoring System Through LoRaWAN for Smart Agriculture</b> by Pongsarun Boonyopakorn and Thanamate Thongna	12
1570652670	<b>Non-Communicable Diseases Classification Using Multi-Label Learning Techniques</b> by Worawith Sangkatip and Jiratta Phuboon-ob	17
1570652679	<b>Automatic Identification of Unique Conference Names Using Rule-based System</b> by Nuttapol Boonsom, Suwimol Wahakit, Thearith Ponn, Worapan Kusakunniran and Kittikhun Thongkanchorn	22

Paper ID	Title	Page
1570652766	<b>Improving KNN Algorithm Based on Weighted Attributes by Pearson Correlation Coefficient and PSO Fine Tuning</b> by Wanarase Sinhathita, Kietikul Jearanaitanakij and Kietikul Jearanaitanakij	27
1570652815	<b>Effects of SERP Information on Academic Search Behaviours</b> by Shanshan Jiang and Pawitra Liamruk	33
1570652816	<b>Study of the Performance of Machine Learning Algorithms for Face Mask Detection</b> by Wuttichai Vijitkunsawat	39
1570652863	<b>Bhutanese Sign Language Alphabets Recognition Using Convolutional Neural Networks</b> by Karma Wangchuk, Panomkhawn Riyamongkol and Rattapoom Waranusast	44
1570652889	<b>A Comparative Analysis of Digital Content Marketing Competency in Singapore and Thailand</b> by Veeraporn Siddoo and Jinda Sawattawee	50
1570652901	<b>Providing an End-to-End Privacy Preservation over LoRaWAN Platforms</b> by Charat Khamsaeng and Sophon Mongkolluksamee	56
1570652963	<b>Impact of Network QoS Factors on QoE of IoT Services</b> by Abdurauf Khamosh	61
1570652979	<b>A Survey for Users' Awareness and Practices Regarding Smartphones' Security and Privacy in Afghanistan</b> by Javid Hamdard	66
1570652980	<b>Survey of Serious Game Controllers for Stroke Rehabilitation</b> by Sanya Utthayotha	71

Paper ID	Title	Page
1570655204	<b>Stockify: A Web Application of Fundamental Stock Analysis for New Investors</b> by Songsri Tangsripairoj, Pattaphon Sutanaphanit, Siraphob Treenitikul, Watcharawit Wongaod and Kreangkrai Ma- neeintr	76
1570659954	<b>Serious Game Enhanced Learning for Agricultural Engineering Education: Two Games Development Based on IoT Technology</b> by Preecha Tangworakitthaworn	82
1570660156	<b>Novelty Detection of Beverage Bottle Images Based on Transfer Learning</b> by Werayuth Charoenruengkit and Supanat Jintawatsakoon	87
1570660245	<b>Online Teaching and Learning and the Attitudes of Students and the General Public</b> by Yuwanuch Gulatee, Anong Rungsuk and Babara Combes	92
1570660452	<b>Canines Rabies Epidemic and Control Simulator</b> by Chawapat Youngjitikornkun, Jirawat Jiwattanakul, Worapan Kusakunniran, Anuwat Wiratsudakul, Weerapong Thanapongtharm, Arun Chumkaeo and Kansuda Leelahapongsathon	98
1570660480	<b>A Comparative Study of Machine Learning for iOS Based on Siam Betta Mobile Application</b> by Kuljaree Tantayakul, Wasimon Panichpattanakul and Wasimon Panichpattanakul	104
1570660707	<b>Blockchain-Based Implementation for Integration of DNA Profiles Information Systems</b> by Sai Thu Ya Aung and Charnyote Pluempitiwiriyaewj	110
1570660798	<b>Wrist-Worn Physical Activity Recognition: A Fusion Learning Approach</b> by Katika Kongsil, Ureerat Suksawatchon and Jakkarin Suksawatchon	116
1570660927	<b>Khmer WordNet Construction</b> by Udorm Phon and Charnyote Pluempitiwiriyaewj	122

Paper ID	Title	Page
1570660947	<b>MedThaiSAGE2: Enhancing the Decision Support System Using Rich Visualization on SAGE 2</b> by Jarernsri Mitranont, Wudhichart Sawangphol, Supakorn Sillapathadapong, Suthivich Suthinuntasook, Wichayapat Thongrattana and Jason Haga	128
1570656565	<b>Bus Arrival Time Estimation for Public Transportation System Using LSTM</b> by Kaisorrawat Panyo and Kaisorrawat Panyo	134
1570660949	<b>Date of Birth Information Extraction from the Internet by Deep Learning Approach</b> by Jian Qu, Chinorot Wangtragulsang and Datchakorn Tancharoen	139
1570661724	<b>Recognizing Breathing Sounds Using HMMs and Grammar</b> by Rong Phoophuangpairoj	144
1570662057	<b>Mobile Development of Hydroponic Smart Farm Using Information Flow Diagram</b> by Meennapa Rukhiran and Paniti Netinant	150
1570662453	<b>Linguistic Duality</b> by Nakahodo Rintaro and Virach Sornlertlamvanich	156
1570663148	<b>Retinal Blood Vessels Segmentation Based on Adaptive Interval Top-Hat Filtering in Heterogeneous Environment Optic Disc Image</b> by Nilrat Kanyunthong, Apirak Jirayusakul, Annupan Rodtook, Benchaporn Jantarakongkul and Krisana Chinnasarn	162
1570663633	<b>PATTANA: An Online Course Learning Outcome Assessment Framework</b> by Petch Sajjacholapunt, Prakritchai Phanphila, Suvijak Permpholphattana, Watthanan Jatuviriyapornchai and Kamonrak Sariyarsheeva	167
1570663827	<b>Development of a Universal Exercise Robot Based on Torque and Impedance Control</b> by Pradya Prempraneerach	173

Paper ID	Title	Page
1570663888	<b>Quantile Classification of Variance from the Mean for Spreading Factor Allocation in LoRaWAN</b> by Phanupong Tempiem	179
1570663897	<b>An Adoption of a Contradiction Detection Task to Assist the Summarization of Online Debates</b> by Kittiya Thibuy, Prajaks Jitngernmadan and Sorawit Thokrairak	185
1570663950	<b>A Framework for Mobile Personalized-Based Recommender System Using Social Tag Clustering Approach</b> by Nattapong Sanchan	191
1570664637	<b>Newly Developed Heuristics to Evaluate m-Learning Application Interface</b> by Pakapan Limtrairut	197
1570664719	<b>Time Series Forecasting of E-Databases Usage in Mahidol University Library with Exponential Smoothing , LSTM, and ARIMA Models</b> by Vanapol Chamsukhee	202
1570664857	<b>Face Detection for Low-Light Face in Real-Time Video Using VamStack Platform</b> by Ratanak Khoeun, Suwanna Rasmeequan, Tanin Intaramanee and Sukonthee Sungkhun	208
1570664858	<b>Low-Level Image Features in Orthographic Projection Snapshot to 3D Coordinate Retrieval</b> by Prasertsak Tiawongsombat and Inthawadee Chantaksinopas	212
1570664864	<b>A Campus IoT Cloud Platform for Stream Processing</b> by Somphop Chanthakit and Choopan Rattanapoka	217
1570664903	<b>Incoming VoIP Call Alert System for the Hearing-Impaired</b> by Petcharat Suriyachai	222

Paper ID	Title	Page
1570664961	<b>Valuable Waste Classification Modeling Based on SSD-MobileNet</b> by Sorawit Thokrairak, Prajaks Jitngernmadan and Kittiya Thibuy	228
1570664964	<b>Holistic Solution Design and Implementation for Smart City Recycle Waste Management, Case Study: Saensuk City</b> by Kittiya Thibuy, Prajaks Jitngernmadan and Sorawit Thokrairak	233
1570664990	<b>VR Training Environment for Electrical Vehicle Assembly Training in EEC</b> by Prajaks Jitngernmadan, Prawit Boonmee and Benchaporn Jantarakongkul	238
1570665055	<b>Implementing Dockerized Elastic Stack for Security Information and Event Management</b> by Ferdy Mulyadi, Leela Annam, Chalernpol Charnsripinyo and Ridnarong Promya	243
1570665070	<b>Student Activity Credit Framework (PSUCOIN)</b> by Naratorn Boonpeam, Warodom Werapun and Tanakorn Karode	249
1570665085	<b>The Development of Air Quality Monitoring System Using IoT and LPWAN</b> by Attapon Udomlumlert, Thattapon Surasak, Napaphat Vichaidis, Pichitchai Kamin, Scott CH Huang and Nattagit Jiteurtragool	254
1570665123	<b>SYNTTest: Prototype of Syntax Test Case Generation Tool</b> by Adisak Intana, Monchanok Thongthep, Phatcharee Thepnimit, Phaplak Saethapan and Tanawat Monpipat	259
1570665190	<b>Performance Evaluation of High-Performance and Flexible Protocol on Data Mover Challenge</b> by Praphan Pavarangkoon, Ken T. Murata, Kazunori Yamamoto, Naoyuki Fujita, Hirofumi Ohkawa, Hidekazu Mikai, Yosuke Ikehata, Kazuya Muranaga, Takamichi Mizuhara, Ayahiro Takaki and Yasunori Kakizawa	265
1570665199	<b>Thai Traffic Sign Classification and Recognition System Based on Histogram of Gradients, Color Layout Descriptor, and Normalized Correlation Coefficient</b> by Nattapol Namyang, and Suphakant Phimoltares	270



Paper ID	Title	Page
1570665209	<b>Tourism Recommender System Using Machine Learning Based on User's Public Instagram Photos</b> by Charmsak Srisawatsakul and Waransanang Boontarig	276
1570666346	<b>ECG-Based Arrhythmia Detection Using Average Energy and Zero-Crossing Features with Support Vector Machine</b> by Nattapol Aunsri, Nutwara Chumrit and Chalita Weangwan	282
1570666646	<b>Combining Natural Language Annotation with Transformer for Thai Sentence Classification</b> by Saranlita Chotirat and Phayung Meesad	288
1570666648	<b>Amniotic Fluid Bag Chromosome Geometric Features Detection</b> by Pichet Wayalun and Kanuengnij Kubola	294
1570661319	<b>Reducing Overfitting and Improving Generalization in Training Convolutional Neural Network (CNN) Under Limited Sample Sizes in Image Recognition</b> by Panissara Thanapol, Kittichai Lavangnananda, Pascal Bouvry, Frederic Pinel and Franck Leprevost	300
1570652473	<b>Developing a Smart IoT Solution to Monitor On-Bed Movement Patterns</b> by Prakrankiat Youngkong, Worawit Panpanyatep Pascal Bou-	306
1570652927	<b>IC4Windows-Hand Gesture for Controlling MS Windows</b> by Wisnu Aditya, Noorkholis Luthfil Hakim, Timothy K. Shih, Avirmed Enkhat and Tipajin Thaipisutikul	310
1570660034	<b>HandKey: An Efficient Hand Typing Recognition Using CNN for Virtual Keyboard</b> by Avirmed Enkhat, Timothy K. Shih, Tipajin Thaipisutikul, Noorkholis Luthfil Hakim and Wisnu Aditya	315
1570665192	<b>Survey and Experimental Comparison of Machine Learning Model</b> by Vattiya Jarunakarint, Surapong Utama, Worasak Rueangsirarak	320