

# **5th International Conference on Computer Science and Computational Intelligence (ICCSCI 2020)**

Empowering Society Towards Industry  
4.0 with High Research Impact of  
Computational Intelligence and  
Information Technology

Procedia Computer Science Volume 179

Online

19-20 November 2020

Part 1 of 2

## **Editors:**

**Widodo Budiharto  
Aditya Kurniawan  
Derwin Suhartono**

**Andry Chowanda  
Alexander AS Gunawan  
Yogi Udjaja**

ISBN: 978-1-7138-2765-8

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2021) The Authors. Published by Elsevier Ltd.  
Creative Commons Attribution 4.0 International License.  
License details: <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination, and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact the publisher:

Elsevier B.V.  
Radarweg 29  
Amsterdam 1043 NX  
The Netherlands

Phone: +31 20 485 3911  
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

**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  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)



## Table of Contents

### PREFACE

Widodo Budiharto, Andry Chowanda, Aditya Kurniawan, Derwin Suhartono, Alexander A. Gunawan, Yogi Udjaja, Dewi Suryani, and Hanry Ham. . . . .	1
KEYNOTE SPEAKER 1: Formal Performance Evaluation for Document Image Analysis Prof. Bart Lamiroy . . . . .	2
KEYNOTE SPEAKER 2: Towards Edge-Fog-Cloud Continuum Marcin Paprzycki . . . . .	3
KEYNOTE SPEAKER 3: The continuous deployment, Ecosystem and Empowerment: Excelling in the Digitalization Driven World Dr Ford Lumban Gaol . . . . .	4
KEYNOTE SPEAKER 4: Data Scientist as the New Essential Role Tan Wijaya . . . . .	5
Educational Software as Assistive Technologies for Children with Autism Spectrum Disorder Yudy Purnama, Faiz Ahmadhio Herman, Joel Hartono, Neilsen, Dewi Suryani, and Gradiyanto Sanjaya . . . . .	6
Parameter Optimization of Support Vector Regression Using Harris Hawks Optimization I Nyoman Setiawan, Robert Kurniawan, Budi Yuniarto, Rezzy Eko Caraka, and Bens Pardamean. . . . .	17
Latent Regression and Ordination Risk of Infectious Disease and Climate Rezzy Eko Caraka, Rung Ching Chen, Youngjo Lee, Prana Ugiana Gio, Arif Budiarto, and Bens Pardamean . . . . .	25
RHC: A Dataset for In-Room and Out-Room Human Counting Bens Pardamean, Hery Harjono Muljo, Faizal Abid, Herman, Albert Susanto, and Tjeng Wawan Cenggoro. . . . .	33
Unsupervised News Topic Modelling with Doc2Vec and Spherical Clustering Arif Budiarto, Reza Rahutomo, Hendra Novyantara Putra, Tjeng Wawan Cenggoro, Muhamad Fitra Kacamarga, and Bens Pardamean . . . . .	40
Multi-class Weather Forecasting from Twitter Using Machine Learning Approaches Kartika Purwandari, Join W.C. Sigalingging, Tjeng Wawan Cenggoro, and Bens Pardamean. . . . .	47
Finite element analysis of the CFRP-based 3D printed ankle-foot orthosis Md. Hazrat Ali, Zhalgas Smagulov, and Temirlan Otepbergenov . . . . .	55
Design of a flexible neck orthosis on Fused Deposition Modeling printer for rehabilitation on regular usage Nurbol Sabyrov, Zhuldyz Sotsial, Anuar Abilgazyev, Desmond Adair, and Md. Hazrat Ali . . . . .	63
SIBI Sign Language Recognition Using Convolutional Neural Network Combined with Transfer Learning and non-trainable Parameters Suharjito, Narada Thiracitta, and Herman Gunawan . . . . .	72
Convolutional Neural Networks for Scops Owl Sound Classification Alam Ahmad Hidayat, Tjeng Wawan Cenggoro, and Bens Pardamean . . . . .	81

Performance Evaluation of Binary Classification of Diabetic Retinopathy through Deep Learning Techniques using Texture Feature Ramzi Adriman, Kahlil Muchtar, and Novi Maulina. . . . .	88
Healthy Elder: Brain Stimulation Game for the Elderly to Reduce the Risk of Dementia Yogi Udjaja, Reinert Yosua Rumagit, Wikaria Gazali, and Jonathan Deni . . . . .	95
Effectiveness Analysis of Distributed Scrum Model Compared to Waterfall approach in Third-Party Application Development Kresna Dwi Prasetya, Suharjito, and Devriady Pratama . . . . .	103
A Fast and Accurate Model of Thoracic Disease Detection by Integrating Attention Mechanism to a Lightweight Convolutional Neural Network Branden Adam Sangeroki, and Tjeng Wawan Cenggoro. . . . .	112
Towards the Analysis networks of Redundancy with Von Neumann Machines And RPCs Erick Fernando, and Pandapotan Siagian. . . . .	119
The distance function approach on the MiniBatchKMeans algorithm for the DPP-4 inhibitors on the discovery of type 2 diabetes drugs Sarah Syarofina, Alhadi Bustamam, Arry Yanuar, Devvi Sarwinda, Herley S. Al-Ash, and Abdul Hayat . . . . .	127
Evaluation of Dengue Model Performances Developed Using Artificial Neural Network and Random Forest Classifiers Permatasari Silitonga, Beti E. Dewi, Alhadi Bustamam, and Herley Shaori Al-Ash . . . . .	135
A Systematic Literature Review: Learning with Visual by The Help of Augmented Reality Helps Students Learn Better Rishka A Liono, Nadiran Amanda, Anisah Pratiwi, and Alexander A S Gunawan . . . . .	144
A Comparative Study of IBM and IRM Target Mask for Supervised Malay Speech Separation from Noisy Background Norezmi Jamal, N. Fuad, Sha'abani, and Shahnoor Shanta. . . . .	153
The Drug Design for Diabetes Mellitus type II using Rotation Forest Ensemble Classifier Nadya Asanul Husna, Alhadi Bustamam, Arry Yanuar, and Devvi Sarwinda . . . . .	161
Local Features Based Deep Learning for Mammographic Image Classification: In Comparison to CNN Models Ardiant Utomo, Edwin Farrel Juniawan, Vincent Lioe, and Diaz D. Santika . . . . .	169
Personality Classification of Facebook Users According to Big Five Personality Using SVM (Support Vector Machine) Method Ninda Anggoro Utami, Warih Maharani, and Imelda Atastina . . . . .	177
Behavior Correlation between Games in First-Person Shooter Genre based on Personality Traits Sebastian Lesmana, Octavianus Ariwana, Rudy P Halim, and Alexander A S Gunawan . . . . .	185
A Convolutional Neural Network-based Ancient Sundanese Character Classifier with Data Augmentation Alam Ahmad Hidayat, Kartika Purwandari, Tjeng Wawan Cenggoro, and Bens Pardamean. . . . .	195
Gaussian Mixture Model Implementation for Population Stratification Estimation from Genomics Data Arif Budiarto, Bharuno Mahesworo, Alam Ahmad Hidayat, Ika Nurlaila, and Bens Pardamean. . . . .	202
Using Video Games to Improve Capabilities in Decision Making and Cognitive Skill: A Literature Review Charles Reynaldo, Ryan Christian, Hansel Hosea, and Alexander A S Gunawan. . . . .	211
Audio Influence on Game Atmosphere during Various Game Events Felix Andersen, Danny, Calvin Leonard King, and Alexander A S Gunawan. . . . .	222
Proposal to use the Analytic Hierarchy Process Method Evaluate Bank Credit Submissions Erick Fernando, and Pandapotan Siagian. . . . .	232

Development of control algorithm for a quadcopter Adilet Tagay, Abylkaiyr Omar, and Md. Hazrat Ali . . . . .	242
Visibility Forecasting Using Autoregressive Integrated Moving Average (ARIMA) Models Afan Galih Salman, and Bayu Kanigoro . . . . .	252
Automated Heart Sound Signal Segmentation and Identification using Abrupt Changes and Peak Finding Detection Norezmi Jamal, Nabilah Ibrahim, MNAH Sha'abani, Farhanahani Mahmud, and N. Fuad . . . . .	260
Traffic Lights Analysis and Simulation Using Fuzzy Inference System of Mamdani on Three-Signaled Intersections. Siti Komsiyah, and Evelyn Desvania. . . . .	268
The Effectivity of Color For Chroma-Key Techniques Carolus Raditya, Muhammad Rizky, Sergio Mayranio, and Benfano Soewito . . . . .	281
Mobile based Augmented Reality Application Prototype for Remote Collaboration Scenario Using ARCore Cloud Anchor Ida Bagus Kerthyayana Manuaba . . . . .	289
Linear and Nonlinear Model of Brain Tumor Growth Simulation Using Finite Difference Method Viska Noviantri, Tomy Tomy, and Andry Chowanda . . . . .	297
Reliability Analysis of Distribution Transformer with Bayesian Mixture and Cox Regression Approach Rinda Nariswari, and Herena Pujihastuti . . . . .	305
Signaling and Pacing: A Comparative Study on Evidence Based Stimuli using an Eye Tracking Device Urbano Patayon, John Mark Gallegos, Patrick Mack, Regien Bacabis, and Celesamae Vicente . . . . .	313
Automatic Identification of Abaca Bunchy Top Disease using Deep Learning Models Urbano B. Patayon, and Renato V. Crisostomo . . . . .	321
Estimation of Extreme Rainfall Patterns Using Generalized Linear Mixed Model for Spatio-temporal data in West Java, Indonesia Ro'fah Nur Rachmawati . . . . .	330
Spatial Bayes Analysis on Cases of Malnutrition in East Nusa Tenggara, Indonesia Ro'fah Nur Rachmawati, and Novi Hidayat Puspongoro . . . . .	337
Systematic Evaluation of Cross Population Polygenic Risk Score on Colorectal Cancer Bharuno Mahesworo, Arif Budiarto, and Bens Pardamean . . . . .	344
Monitoring Mung Bean's Growth using Arduino Dewa A.D. Audrey, Stanley, Kevin S. Tabaraka, Adriel Lazaro, and Widodo Budiharto . . . . .	352
Density Estimation of Neonatal Mortality Rate Using Empirical Bayes Deconvolution in Central Java Province, Indonesia Fevi Novkaniza, Khairil Anwar Notodiputro, I Wayan Mangku, and Kusman Sadik . . . . .	361
The Impacts of The Cherry Orchard Video Game on Players' Reading Comprehension Alvin Saputra Komala, and Irfan Rifai . . . . .	368
Portfolio Selection of KOMPAS-100 Stocks Index Using B-Spline Based Clustering Yogas Eka Putra, Deni Saepudin, and Annisa Aditsania . . . . .	375
Lasso Regression for Daily Rainfall Modeling at Citeko Station, Bogor, Indonesia Ro'fah Nur Rachmawati, Azani Cempaka Sari, Yohanes . . . . .	383
Implementation of Automatic Text Summarization with TextRank Method in the Development of Al-Qur'an Vocabulary Encyclopedia Muhamad Fahmi Fakhrezi, Moch. Arif Bijaksana, and Arief Fatchul Huda . . . . .	391

Fiscal decentralization analysis that affect economic performance using geographically weighted regression (GWR) Syarifah Diana Permai, Ardelia Christina, and Alexander Agung Santoso Gunawan . . . . .	399
Argument Identification in Indonesian Tweets on the Issue of Moving the Indonesian Capital Amalia Huwaidah, Adiwijaya, and Said Al Faraby . . . . .	407
Automatic personality prediction from Indonesian user on twitter using word embedding and neural networks Nicholaus Hendrik Jeremy, and Derwin Suhartono . . . . .	416
Deep Learning in Image Classification using Residual Network (ResNet) Variants for Detection of Colorectal Cancer Devvi Sarwinda, Radifa Hilya Paradisa, Alhadi Bustamam, and Pinkie Anggia . . . . .	423
Multi-threaded Spotted Hyena Optimizer with thread-crossing techniques Felix Martinez-Rios, and Alfonso Murillo-Suarez. . . . .	432
A multiprocess Salp swarm optimization with a heuristic based on crossing partial solutions Felix Martinez-Rios, and Alfonso Murillo-Suarez. . . . .	440
The Design and Implementation of a Dashboard Web-Based Video Surveillance in OpenStack Swift Pandapotan Siagian, and Erick Fernando. . . . .	448
AutoVAT: An Automated Visual Acuity Test Using Spoken Digit Recognition with Mel Frequency Cepstral Coefficients and Convolutional Neural Network Derryl Taufik, and Novita Hanafiah . . . . .	458
A literature review: Feasibility Study of technology to improve shopping experience Heraldo Y Purwantono, Alexander A S Gunawan, Herman Tolle, Muhammad Attamimi, and Widodo Budiharto . . . . .	468
Forecasting Indonesia Exports using a Hybrid Model ARIMA-LSTM Emmanuel Dave, Albert Leonardo, Marethia Jeanice, and Novita Hanafiah . . . . .	480
Service-oriented architecture design for small and medium enterprises with infrastructure and cost optimization. Hesmeralda Rojas, Kevin A. Arias, and Ronald Renteria . . . . .	488
Classifying Promotion Images Using Optical Character Recognition and Naïve Bayes Classifier Hubert, Peter Phoenix, Richard Sudaryono, and Derwin Suhartono . . . . .	498
A Systematic Literature Review of A* Pathfinding Daniel Foad, Alifio Ghifari, Marchel Budi Kusuma, Novita Hanafiah, and Eric Gunawan . . . . .	507
Performance of Information Technology Infrastructure Prediction using Machine Learning Ignatius Rahardjo Heruwidagdo, Suharjito, Novita Hanafiah, and Yanto Setiawan . . . . .	515
Time series analysis and forecasting of coronavirus disease in Indonesia using ARIMA model and PROPHET Christophorus Beneditto Aditya Satrio, William Darmawan, Bellatasya Unrica Nadia, and Novita Hanafiah . . . . .	524
Predicting Sneaker Resale Prices using Machine Learning Dita Raditya, Nicholas Erlin P, Ferarida Amanda S, and Novita Hanafiah . . . . .	533
Systematic Literature Review: American Sign Language Translator Andra Ardiansyah, Brandon Hitoyoshi, Mario Halim, Novita Hanafiah, and Aswin Wibisurya . . . . .	541
Using cloud storage to support reminiscence Leroy Gian Michael, James Alexander, Muhammad Abi Rafdi, and Derwin Suhartono . . . . .	550
Extractive Hotel Review Summarization based on TF/IDF and Adjective-Noun Pairing by Considering Annual Sentiment Trends Gabriela Nathania H., Ryan Siautama, Amadea Claire I. A., and Derwin Suhartono . . . . .	558

Personality Assessment Video Game Based on The Five-Factor Model Pietter Haizel, Grace Vernanda, Keyzia Alexandra Wawolangi, and Novita Hanafiah . . . . .	566
Enhancing Branch Office Network Availability Using Cloud EoIP Gateway Fransiskus W.P. Dharma, Suharjito . . . . .	574
Text-based Depression Detection on Social Media Posts: A Systematic Literature Review David William, and Derwin Suhartono . . . . .	582
Midimew Connected Torus Network for Next Generation Massively Parallel Computer System Maryam Manaa Al-Shammari, Asrar Haque, and M.M. Hafizur Rahman . . . . .	590
Clicker Bot for Gacha Games Using Image Recognition Timotius Dharmawan, and Novita Hanafiah . . . . .	598
Real Time IP Camera Parking Occupancy Detection using Deep Learning Albertus Farley, Harry Ham, Hendra . . . . .	606
Mobile Based Application of Mosquito Larvae Checking Reports : Malaka Sari Village Case Aqsha Biyano Tresan Andanaputra, and Harry Ham . . . . .	615
Deep Learning as a Vector Embedding Model for Customer Churn Tjeng Wawan Cenggoro, Raditya Ayu Wirastari, Edy Rudianto, Mochamad Ilham Mohadi, Dinne Ratj, and Bens Pardamean . . . . .	624
A Design of Polygenic Risk Model with Deep Learning for Colorectal Cancer in Multiethnic Indonesians Steven Amadeus, Tjeng Wawan Cenggoro, Arif Budiarto, and Bens Pardamean . . . . .	632
Domain Adaptation for Part-of-Speech Tagging of Indonesian Text Using Affix Information Aditya Maulana, and Ade Romadhony . . . . .	640
Lightweight End to end Pose-Robust face recognition system with Deep Residual Equivariant Mapping Kevin William Gunawan, Noptovius Halimawan, Suharjito . . . . .	648
The Mobile Life Simulator for Introducing the Career as a Professional Player in E-Sport Ngurah Raditya Kottama, Nicolas Sebastian, Hafizh Adilla Adrianto, Jeklin Harefa, and Andry Chowanda . . . . .	656
Forecasting Social Distancing impact on COVID-19 in Jakarta using SIRD Model Jason, Roslynlia, and Alexander A S Gunawan . . . . .	662
Designing Memory Game for Learning Healthy Life David Yonathan, Susandi, and Yulyani Arifin . . . . .	670
Fuzzy Centroid and Genetic Algorithms: Solutions for Numeric and Categorical Mixed Data Clustering Rani Nooraeni, Muhamad Iqbal Arsa, and Nucke Widowati Kusumo Projo . . . . .	677
Comparative Study of Recent Swarm Algorithms for Continuous Optimization Ending Indramaya, and Suyanto Suyanto . . . . .	685
Public Opinion of Transportation integrated (Jak Lingko), in DKI Jakarta, Indonesia Fajar Fathur Rachman, Rani Nooraeni, and Lia Yuliana . . . . .	696
Hoax Analyzer for Indonesian News Using Deep Learning Models Bagas Pradipabista Nayoga, Ryan Adipradana, Ryan Suryadi, and Derwin Suhartono . . . . .	704
Implementation of Using HMM-GA In Time Series Data Agung Yuniarta Sosiawan, Rani Nooraeni, and Liza Kurnia Sari . . . . .	713
Syllabification Model of Indonesian Language Named-Entity Using Syntactic n-Gram Ahmad Muammar Fanani, and Suyanto Suyanto . . . . .	721
Sentiment Analysis Using Word2vec And Long Short-Term Memory (LSTM) For Indonesian Hotel Reviews Putra Fissabil Muhammad, Retno Kusumaningrum, and Adi Wibowo . . . . .	728

Non-Factoid Answer Selection in Indonesian Science Question Answering System using Long Short-Term Memory (LSTM) Alfi Fauzia Hanifah, and Retno Kusumaningrum . . . . .	736
Support Vector Regression for Predicting the Number of Dengue Incidents in DKI Jakarta Ivan Noverlianto Tanawi, Valentino Vito, Devvi Sarwinda, Hengki Tasman, and Gatot Fatwanto Hertono. . . . .	747
Small Area Estimation of Sub-District's Per Capita Expenditure through Area Effects Selection using LASSO Method Novi Hidayat Pusponegoro, Anang Kurnia, Khairil Anwar Notodiputro, Agus Mohamad Soleh, and Erni Tri Astuti. . . . .	754
Implementation of Real-Time Speech Separation Model Using Time-Domain Audio Separation Network (TasNet) and Dual-Path Recurrent Neural Network (DPRNN) Alfian Wijayakusuma, Davin Reinaldo Gozali, Anthony Widjaja, and Harry Ham . . . . .	762
Prototyping "Color in Life" EduGame for Dichromatic Color Blind Awareness Ivan Reinaldo, Nadia Sarah Pulungan, and Herru Darmadi . . . . .	773
Enhancing Player Experience in Game With Affective Computing Doyo Setiono, David Saputra, Kaleb Putra, Jurike V. Moniaga, and Andry Chowanda . . . . .	781
Model Comparison in Speech Emotion Recognition for Indonesian Language Reinert Yosua Rumagit, Glenn Alexander, and Irfan Fahmi Saputra . . . . .	789
An Analysis Model for An Integrated Student Activities Management System for Higher Education during RMO/CMCO/PASCA COVID-19 Period in Malaysia Jamaluddin Jasmis, Azlan Abdul Aziz, Mohd Nor Hajar Hasrol Jono, Zainal Fikri Zamzuri, and Shamsul Jamel Elias. . . . .	798
K-Means Clustering Model to Discriminate Copper-Resistant Bacteria as Bioremediation Agents Ika Nurlaila, Wahyu Irawati, Kartika Purwandari, and Bens Pardamean . . . . .	804
Designing Serious Games to Teach Ethics to Young Children Dellamarsto Bagus, Kevin Setiawan, Panji Arisaputra, Jeklin Harefa, and Andry Chowanda . . . . .	813
Exploring Text-based Emotions Recognition Machine Learning Techniques on Social Media Conversation Andry Chowanda, Rhio Sutoyo, Meiliana, and Sansiri Tanachutiwat. . . . .	821
Long Short-Term Memory Algorithm for Rainfall Prediction Based on El-Nino and IOD Data Dina Zatusiva Haq, Dian Candra Rini Novitasari, Abdulloh Hamid, Nurissaidah Ulinnuha, Arnita, Yuniar Farida, RR. Diah Nugraheni, Rinda Nariswari, Ilham, Hetty Rohayani, Rahmat Pramulya, and Ari Widjayanto. . . . .	829
An Algorithms for Finding the Cube Roots in Finite Fields Faisal, Rojali, and Mohd Sham Bin Mohamad . . . . .	838
Hotspot Prediction Using 1D Convolutional Neural Network Mohammad Anang Syarifudin, Dian Candra Rini Novitasari, Faridawaty Marpaung, Noor Wahyudi, Dian Puspita Hapsari, Endang Supriyati, Yuniar Farida, Faris Muslihul Amin, RR. Diah Nugraheni, Ilham, Rinda Nariswari, and Fajar Setiawan . . . . .	845
Support Vector Machine with K-fold Validation to Improve the Industry's Sustainability Performance Classification Muhammad Asrol, Petir Papilo, and Fergyanto E Gunawan . . . . .	854
A Novel Reliable Approach For Image Batik Classification That Invariant With Scale And Rotation Using MU2ECS-LBP Algorithm Abdul Haris Rangkuti, Agus Harjoko, and Agfianto Putra . . . . .	863



Predict Mortality in Patients Infected with COVID-19 Virus Based on Observed Characteristics of the Patient using Logistic Regression Bernhard O. Josephus, Ardianto H. Nawir, Evelyn Wijaya, Jurike V. Moniaga, and Margaretha Ohyver . . .	871
Application for Providing the Food Menu Based on Available Food Raw Materials, Cost, and Avoidance for Certain Diseases Rita Layona, and Budi Yulianto . . . . .	878
Enhancing Historical Learning Using Role-Playing Game on Mobile Platform Gede Putra Kusuma, Louis Khrisna Putera Suryapranata, Evan Kristia Wigati, and Yesun Utomo . . . . .	886
Digital Door-Lock using Authentication Code Based on ANN Encryption Novita Hanafiah, Collin Power Kariman, Nicky Fandino, Edwin Halim, Felix Jingga, and Wiedjaja Atmadja . . . . .	894
Data Transmission Using RFID System on Smart Shopping Carts for Checkout Process Efficiency in Supermarket at Indonesia Martinus, Metta Saridewi Wahab, Yudi, and Hanry Ham . . . . .	902
Promoting Data Availability Framework by Using Gamification on Smartphone Fall Detection Based Human Activities Maria Seraphina Astriani, Raymond Bahana, Andreas Kurniawan, and Lee Huey Yi . . . . .	913
Distribution Cost Optimization Using Pigeon Inspired Optimization Method with Reverse Learning Mechanism Wulan Herdianti, Alexander A S Gunawan, and Siti Komsiyah . . . . .	920
A New Damage Index for Structural Health Monitoring: A Comparison of Time and Frequency Domains Fergyanto E. Gunawan, Tran Huu Nhan, Muhammad Asrol, Yasuhiro Kanto, Insannul Kamil, Sutikno. . . . .	930
A Review of Wearable Internet-of-Things Device for Healthcare Nico Surantha, Prabadinata Atmaja, David, and Maulana Wicaksono . . . . .	936
Cloud Quantum Computing Concept and Development: A Systematic Literature Review Haryono Soeparno, and Anzaludin Samsinga Perbangsa . . . . .	944
Evaluating Students' Preferences of Open and Distance Learning (ODL) Tools Raihana Md Saidi, Anis Afiqah Sharip, Nurul Zahirah Abd Rahim, Zuhri Arafah Zulkifli, and Siti Maisarah Md Zain . . . . .	955
Peeking and Testing Broken Object Level Authorization Vulnerability onto E-Commerce and E-Banking Mobile Applications Anthony Viriya, and Yohan Muliono . . . . .	962
An Exploratory Study on Readiness Framework in IoT Forensics Nurul Huda Nik Zulkipli, and Gary B. Wills . . . . .	966
Winning the Needs of the Gen Z: Gamified Health Awareness Campaign in Defeating COVID-19 Pandemic Nurul Hidayah Mat Zain, Siti Nuramalina Johari, Siti Rahayu Abdul Aziz, Noor Hasimah Ibrahim Teo, Norshahidatul Hasana Ishak, and Zainab Othman . . . . .	974
A Comparison: Prediction of Death and Infected COVID-19 Cases in Indonesia Using Time Series Smoothing and LSTM Neural Network Zulfany Erlisa Rasjid, Reina Setiawan, and Andy Effendi . . . . .	982