

# **2019 International Conference on Computer Engineering, Network, and Intelligent Multimedia (CENIM 2019)**

**Surabaya, Indonesia  
19 – 20 November 2019**



**IEEE Catalog Number: CFP19NIM-POD  
ISBN: 978-1-7281-2966-2**

**Copyright © 2019 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:	CFP19NIM-POD
ISBN (Print-On-Demand):	978-1-7281-2966-2
ISBN (Online):	978-1-7281-2965-5

**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

# TABLE OF CONTENT

<b>MESSAGES FROM GENERAL CHAIR</b>	<b>i</b>
<b>MESSAGES FROM RECTOR</b>	<b>ii</b>
<b>ORGANIZING COMMITTEE</b>	<b>iii</b>
<b>TABLE OF CONTENT</b>	<b>vii</b>
<b>FLOOR PLAN</b>	<b>xi</b>
<b>KEYNOTE LECTURES</b>	<b>xv</b>
<b>Assoc. Prof. Mochamad Hariadi</b>	<b>xvii</b>
<b>Prof. Vanessa Evers</b>	<b>xviii</b>
<b>General Schedule</b>	<b>xix</b>
<b>CENIM - KBI 2019: TECHNICAL SESSION SCHEDULE</b>	<b>xxv</b>
<b>TECHNICAL PAPERS</b>	
<b>Automatic Measurement of Fetal Head Circumference from 2-Dimensional Ultrasound</b>	<b>1</b>
<i>Cahya Perbawa Aji, Muhammad Hilman Fatoni, and Tri Arief Sardjono</i>	
<b>Disease Classification based on Dermoscopic Skin Images Using Convolutional Neural Network in Teledermatology System</b>	<b>6</b>
<i>I Ketut Eddy Purnama, Arta Kusuma Hernanda, Anak Agung Putri Ratna, Ingrid Nurtanio, Afif Nurul Hidayati, Mauridhi Hery Purnomo, Supeno Mardi Susiki Nugroho, and Reza Fuad Rachmadi</i>	
<b>Health Level Classification of Motor Stroke Patients Based on Flex Sensor Using Fuzzy Logic Method</b>	<b>11</b>
<i>Anang Habibi, Supeno Mardi Susiki Nugroho, I Ketut Eddy Purnama, Yudith Dian Prawitri, and Imam Subadi</i>	
<b>Sentiment Analysis of Customer Satisfaction on Transportation Network Company Using Naïve Bayes Classifier</b>	<b>17</b>
<i>Eka Yulia Sari, Akriyvalerat Deainert Wierfi, and Arief Setyanto</i>	

<b>Minimizing the Losses and the Cost of a Radial Network using Firefly algorithm: a real case study Diesel-PV-Batteries Hybrid system of Tomia Island, Southeast Sulawesi, Indonesia</b>	23
<i>Mohamed Els. S. Abdelwareth, Imam Robandi, Dedet Candra Riawan, and Rony Seto Wibowo</i>	
<b>Fish Quality Recognition using Electrochemical Gas Sensor Array and Neural Network</b>	28
<i>Muhammad Rivai, Misbah, Muhammad Attamimi, Muhammad Hamka Firdaus, Tasripan, and Tukadi</i>	
<b>Comparison of Difference, Relative and Fractional Methods for Classification of The Black Tea Based on Electronic Nose</b>	33
<i>Danang Lelono, Hanif Nuradi, Muhammad Rangga Satriyo, Triyogatama W. Widodo, Andi Dharmawan, and Jazi Eko Istiyanto</i>	
<b>Deploying Scalable Face Recognition Pipeline Using Distributed Microservices</b>	40
<i>Tahta D. Timur, I Ketut Eddy Purnama, and Supeno Mardi Susiki Nugroho</i>	
<b>Construction of Churn Prediction Model Using Human Voice Emotions Features Based on Bayesian Belief Network</b>	45
<i>Febri Dwi Cahaya Putra, Agustinus Bimo Gumelar, Immah Inayati, Lukman Junaedi, Ferial Hendrata, Rizky Davit Nugroho, Randy Anwar Romadhony, Wahyu Putra Adi Setiawan, and Siska Susilowati</i>	
<b>DTE: Dynamic Traffic Engineering in Software Defined Data Center Networks</b>	51
<i>Farshad Tajedin, Mohammad Farhoudi, Alihsan Samiei, and Behzad Akbari</i>	
<b>A Shared Secret Key Generation between Vehicle and Roadside Based Preprocessing Method</b>	57
<i>Amang Sudarsono, Mike Yuliana, and Prima Kristalina</i>	
<b>Volumetric Analysis of Brain Tumor Magnetic Resonance Image</b>	65
<i>Hapsari Peni Agustin Tjahyaningtjas, Hanik Badriyah Hidayati, Adri Gabriel Sooai, I Ketut Eddy Purnama, and Mauridhi Hery Purnomo</i>	
<b>Screening of Non-overlapping Apnea and Non-apnea from Single Lead ECG-apnea Recordings using Time-Frequency Approach</b>	71
<i>Iman Fahruci, I Ketut Eddy Purnama, and Mauridhi Hery Purnomo</i>	
<b>Facial Model Deformation Based on Landmarks Using Laplacian</b>	77
<i>Ongki Permono Aji, I Ketut Eddy Purnama, and Mauridhi Hery Purnomo</i>	
<b>Development of Casual Game on Android Devices for Children with Diabetes Type 1 Treatment</b>	83
<i>Susi Juniasuti, Husni Mubarak Al Ghifari, Supeno Mardi Susiki Nugroho, and I Ketut Eddy Purnama</i>	

<b>Virtualization and Exploration of the Garudeya Historical Objects Using Immersive Devices</b>	87
<i>Surya Sumpeno, Yanuar Ramadhani Achmadianto, and Ahmad Zaini</i>	
<b>Design and Implementation Serious Game “Tic Tac Toe Math”</b>	93
<i>Muhammad H. Garry, Yuni Yamasari, Supeno Mardi Susiki Nugroho, and Mauridhi Hery Purnomo</i>	
<b>Explorable Virtual Diorama of Indonesian Prehistoric Human Life using Apple ARKit based Mixed Reality</b>	99
<i>Surya Sumpeno and Bima Panji Yudasmara</i>	
<b>The Obstacle Avoidance System In A Fixed-Wing UAV When Flying Low Using LQR Method</b>	106
<i>Andi Dharmawan, Agfianto Eko Putra, I Made Tresnayana, and Wahyu Agung Wicaksono</i>	
<b>Model Prediction Control for Missile Autopilot and Navigation</b>	113
<i>Tommy Pratama, Rusdhianto Effendi Abdul Kadir, and Zulkifli Hidayat</i>	
<b>Missile Guidance Design Using Sliding Curve Method</b>	119
<i>Leonard Wihardi, Rusdhianto Effendi Abdul Kadir, and Zulkifli Hidayat</i>	
<b>Autonomous Navigation and Obstacle Avoidance For Service Robot</b>	125
<i>Muhtadin Muhtadin, Raden Marwan Zanuvar, I Ketut Eddy Purnama, and Mauridhi Hery Purnomo</i>	
<b>Self-Physical Rehabilitation System based on Hand Motion Sensor</b>	133
<i>Supeno Mardi Susiki Nugroho, Muhammad Fauzan, and I Ketut Eddy Purnama</i>	
<b>Class VR: Learning Class Environment for Special Educational Needs using Virtual Reality Games</b>	139
<i>Arik Kurniawati, Ari Kusumaningsih, and Imam Hasan</i>	
<b>Immersive Hand Gesture for Virtual Museum using Leap Motion Sensor Based on K-Nearest Neighbor</b>	144
<i>Surya Sumpeno, I Gede Aris Dharmayasa, and Supeno Mardi Susiki Nugroho</i>	
<b>Development of Mobile Applications and Low Cost Portable Pesticide Residue Detector using Visible Light Spectroscopy</b>	150
<i>Agung W. Setiawan, Ferriady Setiawan, Muhamad A.A.E. Assaidi, Dasi E. Akbar, and Richard Mengko</i>	
<b>Footsteps Counter Using Variances Analysis of Three-Dimensional Accelerometer Data</b>	155
<i>t Arief Kurniawan, Jalaluddin Al-Mursyidy Fadhlurrahman, and Eko Mulyanto Yuniarno</i>	
<b>Development of Fatigue Detection Device Based On IR-UWB and Optic Sensor to Driver</b>	160

*Hanny Boedinoegroho, Adrian Kusuma Rahardjo, Arief Kurniawan, and I Ketut Eddy Purnama*

<b>Cellphone Awareness Inside Vehicles Using Embedded Device And Android Application</b> <i>Tashfiq Rahman, Ahmad Zaini, Chonlameth Arpnikanondt, and Arief Kurniawan</i>	164
<b>Combining Photometric Features and Relative Position to Detect and Track Target Person</b> <i>Bima Sena Bayu Dewantara and Jun Miura</i>	169
<b>Comparison of simple and stratified random sampling on porn videos recognition using CNN</b> <i>I Wayan Agus Arimbawa, I Gede Pasek Suta Wijaya, and Ilham Bintang</i>	175
<b>Improving Lightweight Convolutional Neural Network for Facial Expression Recognition via Transfer Learning</b> <i>Anggit Wikanningrum, Reza Fuad Rachmadi and Kohichi Ogata</i>	181
<b>Prototype of Driving Behavior Monitoring System Using Naïve Bayes Classification Method</b> <i>Eko Pramunanto, Ahmad Zaini, and Vathya Rizkiana</i>	187
<b>Long Range Monitoring System with Haze Reducer Tool Based Digital Image and Video Processing</b> <i>Ahmad Zaini, Eko Mulyanto Yuniarno, and Bramantio Bani Hilmiawan</i>	192
<b>Integrated Smart Safety Home System based on Wireless Sensor Network and Internet of Things as Emergency Preventive Efforts in Settlement Areas</b> <i>Eko Pramunanto, Muhtadin Muhtadin, and William Febrian</i>	198
<b>Human Bone Localization in Ultrasound Image Using YOLOv3 CNN Architecture</b> <i>R. Arif Firdaus Lazuardi, Tita Karlita, Eko Mulyanto Yuniarno, I Ketut Eddy Purnama, and Mauridhi Hery Purnomo</i>	205
<b>Pelican Crossing Adaptive Time Arrangement using Convolutional Neural Network</b> <i>Randy Putra Resha, Reza Fuad Rachmadi, Supeno Mardi Susiki Nugroho and I Ketut Eddy Purnama</i>	211
<b>Gamelan Notation Generating Using Band Pass Filter for Saron Instrument</b> <i>Yoyon K. Suprpto, Eko Mulyanto Yuniarno, and Kafiyatul Fithri</i>	216