

International Conference on Computing and Applied Informatics 2016

Journal of Physics: Conference Series Volume 801

Medan, Indonesia
14 – 15 December 2016

ISBN: 978-1-5108-3844-4
ISSN: 1742-6588

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© (2016) by the Institute of Physics
All rights reserved. The material featured in this book is subject to
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

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
Web: www.proceedings.com

Table of contents

Volume 801

**International Conference on Computing and Applied Informatics 2016
14–15 December 2016, Medan, Indonesia**

**Accepted papers received: 3 January 2017
Published online: 27 March 2017**

Preface

011001

OPEN ACCESS

[International Conference on Computing and Applied Informatics 2016](#)

011002

OPEN ACCESS

[Conference Information](#)

011003

OPEN ACCESS

[International Conference on Computing and Applied Informatics 2016 Poster](#)

011004

OPEN ACCESS

[Peer review statement](#)

Papers

Artificial Intelligence

012001

OPEN ACCESS

[Fuzzy linear programming for bulb production](#)

I Siregar, H Suantio, Y Hanifah, M A Muchtar and T H Nasution.....1

012002

OPEN ACCESS

[System for Detecting Potential Lost Person based on Conditional Random Field](#)

R S Kusuma and G A P Saptawati.....7

012003

OPEN ACCESS

[Distributed Multi Robot Simultaneous Localization and Mapping with Consensus Particle Filtering](#)

F Hidayat, B R Trilaksono and H Hindersah.....14

012004

OPEN ACCESS

[Comparison of Exponential Smoothing Methods in Forecasting Palm Oil Real Production](#)

B Siregar, I A Butar-Butar, RF Rahmat, U Andayani and F Fahmi.....21

012005

OPEN ACCESS

[D&T: An Euclidean Distance Optimization based Intelligent Donation System Model for Solving the Community's Problem](#)

D N Utama, Fitroh, Nuryasin, E Rustamaji, Nurbojatmiko and I Qoyim.....30

012006

OPEN ACCESS

[Design Support System for Open Distance Learning Student Teamwork](#)

A Putranto and Y D Pradipto.....36

Augmented Reality

012007

OPEN ACCESS

[E-Learning Application of Tarsier with Virtual Reality using Android Platform](#)

H N Oroh, R Munir and D Paseru.....42

012008

OPEN ACCESS

[Augmented Reality Implementation in Watch Catalog as e-Marketing Based on Mobile Application](#)

D Adrianto, F A Luwinda and V Yesmaya.....48

012009

OPEN ACCESS

[Virtual Application of Darul Arif Palace from Serdang Sultanate using Virtual Reality](#)

M F Syahputra, T Annisa, R F Rahmat and M A Muchtar.....54

012010

OPEN ACCESS

[Augmented Reality for Searching Potential Assets in Medan using GPS based Tracking](#)

M A Muchtar, M F Syahputra, N Syahputra, S Ashrafia and R F Rahmat.....62

Bioinformatics

012011

OPEN ACCESS

[Bioinformatics analysis of the oxidosqualene cyclase gene and the amino acid sequence in mangrove plants](#)

M Basyuni and R Wati.....68

012012

OPEN ACCESS

[Bioinformatics approach of salt tolerance gene in mangrove plant Rhizophora stylosa](#)

M Basyuni and Sumardi.....75

012013

OPEN ACCESS

[Bioinformatics study of the mangrove actin genes](#)

M Basyuni, M Wasilah and Sumardi.....82

012014

OPEN ACCESS

[Utilization starch of jackfruit seed \(*Artocarpus heterophyllus*\) as raw material for bioplastics manufacturing using sorbitol as plasticizer and chitosan as filler](#)

M Lubis, M B Harahap, A Manullang, Alfarodo, M H S Ginting and M Sartika.....88

Data Mining

012015

OPEN ACCESS

[Designing Knowledge of The PPC with Semantic Network](#)

Ari Fajar Santoso, Iping Supriana and Kridanto Surendro.....94

012016

OPEN ACCESS

[FWFA Optimization based Decision Support System for Road Traffic Engineering](#)

D N Utama, F A Zaki, I J Munjeri and N U Putri.....100

012017

OPEN ACCESS

[Trajectory Pattern Mining Using Sequential Pattern Mining and K-Means for Predicting Future Location](#)

G Kautsar and S Akbar.....106

012018

OPEN ACCESS

[Analysis of Human Mobility Based on Cellular Data](#)

F Arifiansyah and G A P Saptawati.....114

012019

OPEN ACCESS

[Corruption Cases Mapping Based on Indonesia's Corruption Perception Index](#)

Noerlina, L A Wulandhari, Sasmoko, A M Muqsith and M Alamsyah.....120

012020

OPEN ACCESS

[Mining of the social network extraction](#)

M K M Nasution, M Hardi and R Syah.....128

012021

OPEN ACCESS

[Insurance Contract Analysis for Company Decision Support in Acquisition Management](#)

H P Chernovita, D Manongga and A Iriani.....134

012022

OPEN ACCESS

[Studies on behaviour of information to extract the meaning behind the behaviour](#)

M K M Nasution, R Syah and M Elveny.....140

E-Government

012023

OPEN ACCESS

[The impact of e-Procurement practice in Indonesia government: A Preliminary Study \(The case of Electronic Procurement Service at Bekasi District\)](#)

S Candra and F E Gunawan.....147

012024

OPEN ACCESS

[Challenges in developing e-government for good governance in North Sumatra](#)

AY Siahaan.....153

012025

OPEN ACCESS

[Weighted Components of i-Government Enterprise Architecture](#)

E K Budiardjo, G Firmansyah and Z A Hasibuan.....158

012026

OPEN ACCESS

[Probability Model for Designing Environment Condition](#)

Iswar Lubis and K M Nasution Mahyuddin.....163

012027

OPEN ACCESS

[E-Learning Personalization Using Triple-Factor Approach in Standard-Based Education](#)

K A Laksitowening, H B Santoso and Z A Hasibuan.....169

012028

OPEN ACCESS

[Corruption Early Prevention: Decision Support System for President of the Republic of Indonesia](#)

Sasmoko, S A Widhoyoko, S Ariyanto, Y Indrianti, Noerlina, A M Muqsith and M Alamsyah.....177

012029

OPEN ACCESS

[An ICT Adoption Framework for Education: A Case Study in Public Secondary School of Indonesia](#)

S Nurjanah, H B Santoso and Z A Hasibuan.....185

012030

OPEN ACCESS

[University Accreditation using Data Warehouse](#)

A S Sinaga and A S Girsang.....195

012031

OPEN ACCESS

[Prototype Design for Digital Game-Based Learning in Prisoner's Dilemma for International Relations Students of Bina Nusantara University](#)

J V Moniaga, L N R W Kabinawa, S Hambali and Y Chandra.....202

012032

OPEN ACCESS

[Assessing Leading ERP-SAP Implementation in Leading Firms in Indonesia](#)

B Syaiful and W Gunawan.....208

E-Health

012033

OPEN ACCESS

[Scheduling Diet for Diabetes Mellitus Patients using Genetic Algorithm](#)

M F Syahputra, V Felicia, R F Rahmat and R Budiarto.....217

012034

OPEN ACCESS

[Design of Knowledge Management System for Diabetic Complication Diseases](#)

Cut Fiarni.....226

012035

OPEN ACCESS

[Understanding social context on TB cases](#)

Y Ariyanto and D M Wati.....232

012036

OPEN ACCESS

[E-Service Quality Evaluation on E-Government Website: Case Study BPJS Kesehatan Indonesia](#)

A Rasyid and I Alfina.....239

Geographical Information System

012037

OPEN ACCESS

[A Conceptual Data Model for Flood Based on Cellular Automata Using Moving Object Data Model](#)

R S Rachmatullah and F N Azizah.....245

012038

OPEN ACCESS

[Food Delivery System with the Utilization of Vehicle Using Geographical Information System \(GIS\) and A Star Algorithm](#)

B Siregar, D Gunawan, U Andayani, Elita Sari Lubis and F Fahmi.....253

Image Vision

012039

OPEN ACCESS

[Detection of Hypertension Retinopathy Using Deep Learning and Boltzmann Machines](#)

B K Triwijoyo and Y D Pradipto.....260

012040

OPEN ACCESS

[Russian Character Recognition using Self-Organizing Map](#)

D Gunawan, D Arisandi, F M Ginting, R F Rahmat and A Amalia.....266

012041

OPEN ACCESS

[Anomaly detection of flight routes through optimal waypoint](#)

M Y Pusadan, J L Buliali and R V H Ginardi.....272

012042

OPEN ACCESS

[Who Recognized Fake Image Better: A Comparison Study between Human and Computer](#)

R Bahana, A Nurhudatiana, M Hidajat and T A Budiono.....280

012043

OPEN ACCESS

[Image Restoration on Copper Inscription Using Nonlinear Filtering and Adaptive Threshold](#)

A Chairy, Y K Suprpto and E M Yuniarno.....287

012044

OPEN ACCESS

[Classification of Acute Myelogenous Leukemia \(AML M2 and AML M3\) using Momentum Back Propagation from Watershed Distance Transform Segmented Images](#)

Esti Suryani, Wiharto, Sarngadi Palgunadi and TP Nurcahya Pradana.....293

012045

OPEN ACCESS

[Recent development of feature extraction and classification multispectral/hyperspectral images: a systematic literature review](#)

A Setiyoko, I G W S Dharma and T Haryanto.....301

012046

OPEN ACCESS

[Contiguous Uniform Deviation for Multiple Linear Regression in Pattern Recognition](#)

A S Andriana, D Prihatmanto, E M I Hidayat, I Supriana and C Machbub.....307

012047

OPEN ACCESS

[Implementation of The LDA Algorithm for Online Validation Based on Face Recognition](#)

Z Zainuddin and A S Laswi.....313

012048

OPEN ACCESS

[Traffic Congestion Model: Challenges and Opportunities](#)

M.D. Enjat Munajat, Rinaldi Munir and Dwi H. Widyantoro.....319

012049

OPEN ACCESS

[Height Measuring System On Video Using Otsu Method](#)

C L M Sandy and R Meiyanti.....325

012050

OPEN ACCESS

[Image Classification of Ribbed Smoked Sheet using Learning Vector Quantization](#)

R F Rahmat, A F Pulungan, S Faza and R Budiarto.....331

012051

OPEN ACCESS

[Tropical Timber Identification using Backpropagation Neural Network](#)

B Siregar, U Andayani, N Fatihah, L Hakim and F Fahmi.....339

012052

OPEN ACCESS

[The Role of Social Media User Experience as a Mediator for Understanding Social Media User Behavior in Indonesia's Museum Industry: Literature Review](#)

A M Sundjaja, F LumanGaol, T Budiarti, B S Abbas, S B Abdinagoro and H Ongowarsito.....346

012053

OPEN ACCESS

[KINECTATION \(Kinect for Presentation\): Control Presentation with Interactive Board and Record Presentation with Live Capture Tools](#)

Rhio Sutoyo, Herriyandi, Tri Fennia Lesmana and Edy Susanto.....353

Information Security

012054

OPEN ACCESS

[File Type Identification of File Fragments using Longest Common Subsequence \(LCS\)](#)

R F Rahmat, F Nicholas, S Purnamawati and O S Sitompul.....359

012055

OPEN ACCESS

[Cloud Based Drive Forensic and DDoS Analysis on Seafile as Case Study](#)

R B Bahaweres, N B Santo and A S Ningsih.....368

012056

OPEN ACCESS

[Comparison of methods for localizing the source position of deauthentication attacks on WAP 802.11n using Chanalyzer and Wi-Spy 2.4x](#)

R B Bahaweres, S Mokoginta and M Alaydrus.....376

012057

OPEN ACCESS

[Enhancing HoneyPot Deception Capability Through Network Service Fingerprinting](#)

R N Dahbul, C Lim and J Purnama.....385

012058

OPEN ACCESS

[Mal-Xtract: Hidden Code Extraction using Memory Analysis](#)

Charles Lim, Yohanes Syailendra Kotualubun, Suryadi and Kalamullah Ramli.....391

012059

OPEN ACCESS

[Combination of Huffman Coding Compression Algorithm and Least Significant Bit Method for Image Hiding](#)

D Rachmawati, A Amalia and J Surya.....403

012060

OPEN ACCESS

[Online trust building through third party trust transfer and third party protection](#)

Wanda Wandoko, Bahtiar Saleh Abbas, Dyah Budiastuti and Raymond Kosala.....407

Machine Learning

012061

OPEN ACCESS

[Analysis and Implementation of Graph Clustering for Digital News Using Star Clustering Algorithm](#)

A B Ahdi, K R SW and A Herdiani.....415

012062

OPEN ACCESS

[Digital News Graph Clustering using Chinese Whispers Algorithm](#)

M F E Pratama, R S W Kemas and H Anisa.....421

012063

OPEN ACCESS

[Frequency Analysis of Chaotic Flow in Transition to Turbulence in Taylor-Couette System with Small Aspect Ratio](#)

Tatsuya Fujii, Yoshihiko Oishi, Hideki Kawai, Hiroshige Kikura, Riky Stepanus Situmorang and Himsar Ambarita.....427

Natural Language Processing

012064

OPEN ACCESS

[Table Extraction from Web Pages Using Conditional Random Fields to Extract Toponym Related Data](#)

Hayyu' Luthfi Hanifah and Saiful Akbar.....435

012065

OPEN ACCESS

[A Framework for Sentiment Analysis Implementation of Indonesian Language Tweet on Twitter](#)

Asniar and B R Aditya.....443

012066

OPEN ACCESS

[Set of Frequent Word Item sets as Feature Representation for Text with Indonesian Slang](#)

Dian Sa'adillah Maylawati and G. A. Putri Saptawati.....449

012067

OPEN ACCESS

[Comparison between BIDE, PrefixSpan, and TRuleGrowth for Mining of Indonesian Text](#)

Dian Sa'adillah Maylawati, Mohamad Irfan and Wildan Budiawan Zulfikar.....455

012068

OPEN ACCESS

[Keyword and Event Extraction for Thematic Map Retrieval from Indonesian Online News Site](#)

A Dewandaru, I Supriana and S Akbar.....461

012069

OPEN ACCESS

[Detecting spam comments on Indonesia's Instagram posts](#)

Ali Akbar Septiandri and Okiriza Wibisono.....471

012070

OPEN ACCESS

[Rhetorical Sentence Categorization for Scientific Paper Using Word2Vec Semantic Representation](#)

G H Rachman, M L Khodra and D H Widyantoro.....478

012071

OPEN ACCESS

[An Automatic Labeling of K-means Clusters based on Chi-Square Value](#)

R Kusumaningrum and Farikhin.....484

012072

OPEN ACCESS

[Pre-processing Tasks in Indonesian Twitter Messages](#)

A F Hidayatullah and M R Ma'arif.....490

012073

OPEN ACCESS

[Latent Dirichlet Allocation \(LDA\) for Sentiment Analysis Toward Tourism Review in Indonesia](#)

IR Putri and R Kusumaningrum.....496

012074

OPEN ACCESS

[Review assessment support in Open Journal System using TextRank](#)

S R Manalu, Willy, A M Sundjaja and Noerlina.....502

012075

OPEN ACCESS

[Topic Identification and Categorization of Public Information in Community-Based Social Media](#)

RP Kusumawardani and MH Basri.....508

012076

OPEN ACCESS

[Comparison of Document Index Graph Using TextRank and HITS Weighting Method in Automatic Text Summarization](#)

Fadhilil Hadyan, Shaufiah and Moch. Arif Bijaksana.....517

012077

OPEN ACCESS

[Question analysis for Indonesian comparative question](#)

A Saelan, A Purwarianti and D H Widyantoro.....524

012078

OPEN ACCESS

[Modelling and Simulation of Search Engine](#)

Mahyuddin K M Nasution.....530

Networking

012079

OPEN ACCESS

[Large-Scale Graph Processing Analysis using Supercomputer Cluster](#)

Alfrido Vildario, Fitriyani and Galih Nugraha Nurkahfi....538

012080

OPEN ACCESS

[Performance of parallel computation using CUDA for solving the one-dimensional elasticity equations](#)

J B B Darmawan and S Mungkasi.....544

012081

OPEN ACCESS

[Distributed Factorization Computation on Multiple Volunteered Mobile Resource to Break RSA Key](#)

I Jaya, S M Hardi, J T Tarigan, E M Zamzami and P Sihombing.....550

Smart City

012082

OPEN ACCESS

[Designing and Characterizing Periodic Image Monitoring Device for Remote Surveillance Purpose](#)

Rahmad Fauzi, Suherman and Rhobby Maulana.....556

012083

OPEN ACCESS

[Ubiquitous learning model using interactive internet messenger group \(IIMG\) to improve engagement and behavior for smart campus](#)

K Umam, S N S Mardi and M Hariadi.....562

012084

OPEN ACCESS

[Remote Monitoring of Post-eruption Volcano Environment Based-On Wireless Sensor Network \(WSN\): The Mount Sinabung Case](#)

Soeharwinto, Emerson Sinulingga and Baihaqi Siregar.....569

012085

OPEN ACCESS

[A Wi-Fi based Electronic Road Sign for Enhancing the Awareness of Vehicle Driver](#)

A Bhawiyuga, R A Sabriansyah, W Yahya and R E Putra.....578

012086

OPEN ACCESS

[Harnessing the hybrid power supply systems of utility grid and photovoltaic panels at retrofit residential single family building in Medan](#)

A B Pangaribuan, R F Rahmat, M S Lidya and M Zálešák.....584

012087

OPEN ACCESS

[Monitoring of Solar Radiation Intensity using Wireless Sensor Network for Plant Growing](#)

B Siregar, F Fadli, U Andayani, LA Harahap and F Fahmi.....592

Socio Informatics

012088

OPEN ACCESS

[A framework to apply ICT for bequeathing the cultural heritage to next generation](#)

R Syah, T E Nuradi and M K M Nasution.....600

012089

OPEN ACCESS

[Some of Indonesian Cyber Law Problems](#)

D D Machmuddin and B Pratama.....606

012090
OPEN ACCESS
[Legal Prescription on Virtual Property and Its Rights](#)

B Pratama.....611

012091
OPEN ACCESS
[We are Different but Alike: A Comparative Analysis between Students' and Teachers' Use of Facebook](#)

Erlin, Susandri and Triyani Arita Fitri.....617

Software in Science and Engineering

012092
OPEN ACCESS
[The Use of Absorptive Capacity in Improving the New Product Development \(NPD](#)

W Gunawan, P Gerardus, B J Tji and K Richard.....624

012093
OPEN ACCESS
[Development of software for estimating clear sky solar radiation in Indonesia](#)

H Ambarita.....634

012094
OPEN ACCESS
[Computational Analysis of Suspended Particles in the Irrigation Channel](#)

Tulus, Suriati and M Situmorang.....640

012095
OPEN ACCESS
[A numerical study on combustion process in a small compression ignition engine run dual-fuel mode \(diesel-biogas\)](#)

H Ambarita, T.I Widodo and D.M Nasution.....646

012096

OPEN ACCESS

[Transient natural convection and conduction heat transfers on hot box of a coke drum in Pre-heating stage](#)

A S Siahaan, H Ambarita, H Kawai and M Daimaruya.....653

012097

OPEN ACCESS

[Mechanical Response of Open Channel Cover Made of Concrete Foam Due to External Loadings](#)

Bustami Syam, Alexander Sebayang, Indra Gunawan, Maraghi Muttaqin, Herry Darmadi, WS Basuki, M. Sabri and S. Abda.....661

012098

OPEN ACCESS

[Pseudo Order Kinetics Model to Predict the Adsorption Interaction of Corn-Stalk Adsorbent Surface with Metal Ion Adsorbate Cu \(II\) and Fe \(II\)](#)

B Haryanto, W B Singh, E S Barus, A Ridho and M R Rawa.....669