ICICoS
2019

The 3rd International Conference
on Informatics and Computational Sciences

CONFERENCE
PROGRAM

October 29th – 30th 2019
Semarang, Central Java, Indonesia

ICICoS 2019

"Accelerating Informatics
and Computational Research
for Smarter Society in The Era of Industry 4.0"

Organized by :
Department of Informatics
Faculty of Science and Mathematics
Universitas Diponegoro

Sponsored by:
IEEE
INDONESIA SECTION

IEEE
Diponegoro University
Student Branch

CONFERENCE INFORMATION

Dates	October 29th (Tuesday) – October 30th (Wednesday) 2019
Organizer	Department of Informatics
	Faculty of Science and Mathematics – Universitas Diponegoro
Venue	Santika Premiere Hotel
	Jl. Pandanaran No. 116-120
	Semarang City, Central Java
	Indonesia, 50134
	Phone: (+62) 24 8413115
Official Language	English
Secretariat	Department of informatics
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Conference Website	http://icicos.org

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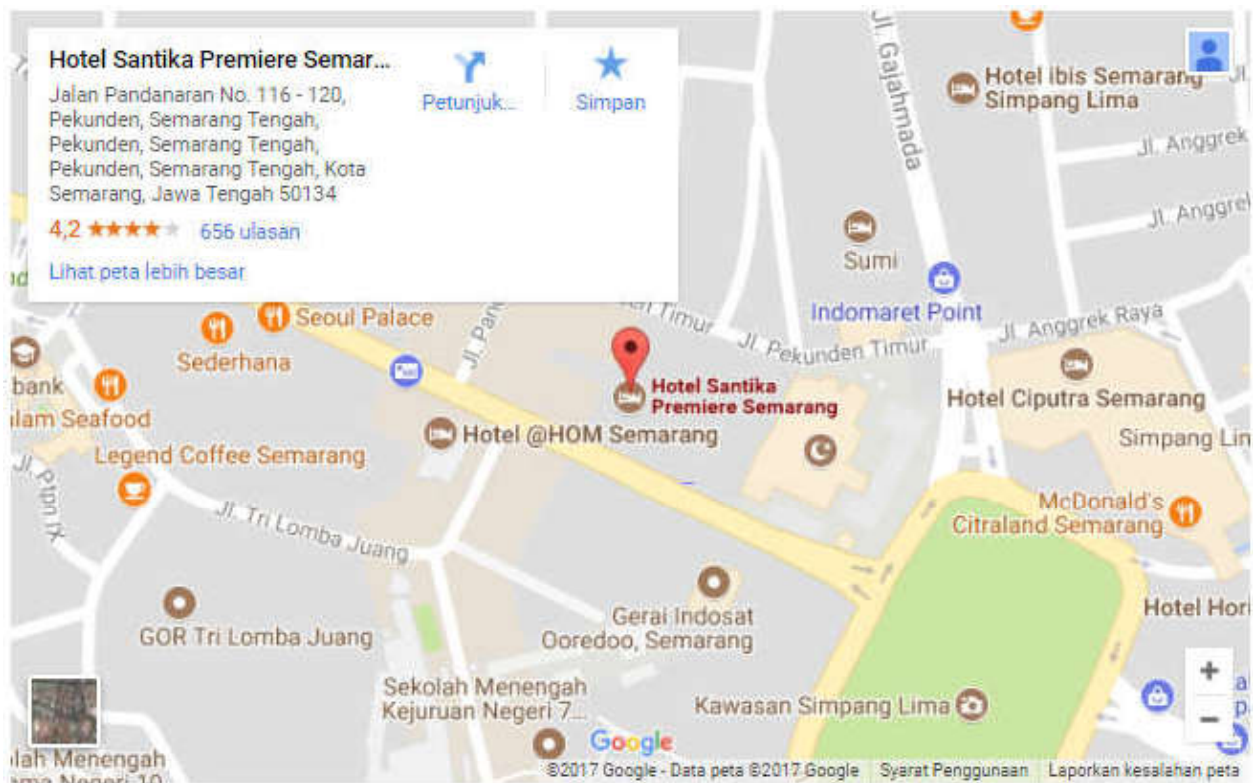- Z Mekkioui, University of tlemcen, DZ

VENUE MAP

Santika Premiere Hotel

Jl. Pandanaran No. 116-120

Semarang City, Central Java

Indonesia, 50134

Phone: (024) 8413115

Venue Map

First Floor of Santika Premiere Hotel
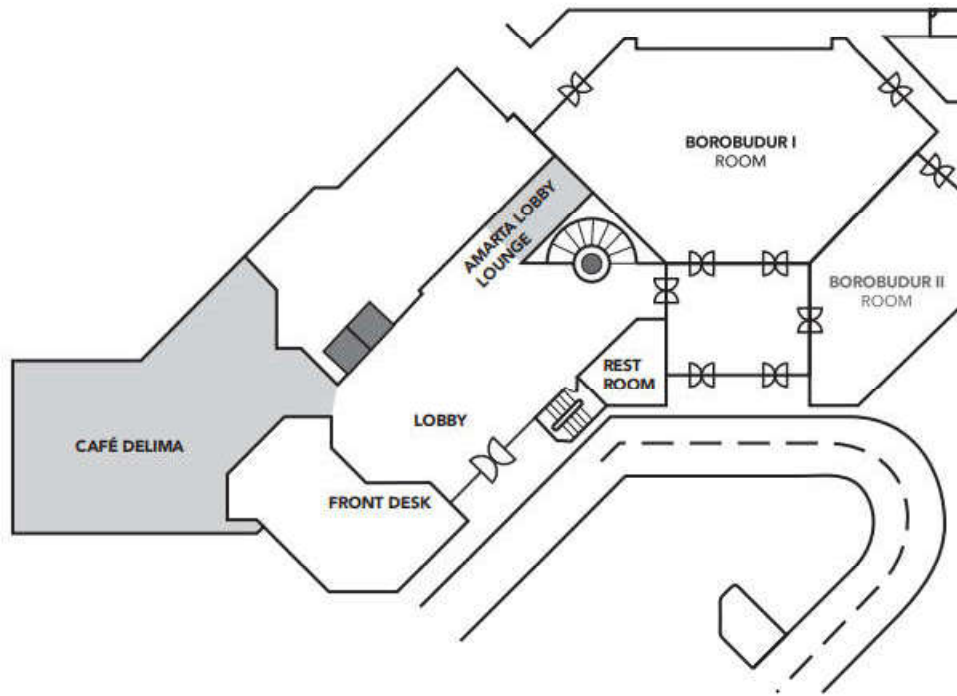
Note:
Praying Room is located on UG Floor (Parking Area)

Venue Map

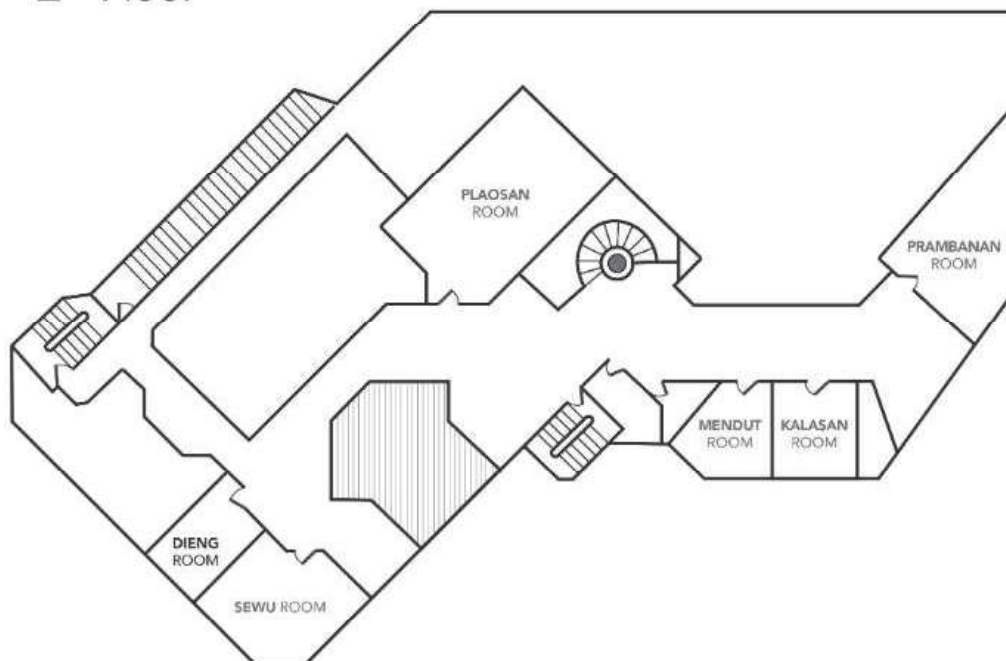Second Floor of Santika Premiere Hotel

REGISTRATION

Registration Fee

Category		Early Bird**)	Regular
International	IEEE Member	USD 225	USD 250
	Non-IEEE Member	USD 300	USD 350
	IEEE Student Member	USD 200	USD 225
	Student Non IEEE Student Member	USD 225	USD 275
Local (Indonesia)	IEEE Member	IDR 2.750.000	IDR 3.250.000
	Non-IEEE Member	IDR 3.250.000	IDR 3.750.000
	IEEE Student Member	IDR 2.500.000	IDR 3.000.000
	Student Non IEEE Student Member	IDR 2.750.000	IDR 3.250.000

**) Before September 25th, 2019

Payment Method

All payment for the administration fee and additional events should be transferred to Universitas Diponegoro's virtual account. The bill detail for each author is created separately, and sent individually to each of the author.

PROGRAM SCHEDULE

Tuesday, October 29th, 2019

Time	Event	Event Details	Rooms
07.30-08.00		Registration	Borobudur 1 Room
08.00-08.15	Opening Ceremony	Opening speech from the General Chair of ICICoS 2019 **(Dr. Retno Kusumaningrum, S.Si, M.Kom)**	
08.15-08.25		Opening speech from the Dean of Faculty of Science and Mathematics, Universitas Diponegoro **(Prof. Dr. Widowati M.Si.)**	
08.25-08.45		Opening speech from Chair of IEEE Indonesia Section **(Prof. Wisnu Jatmiko)**	
08.45-08.55		Opening Speech from the Rector Universitas Diponegoro **(Prof. Dr. Yos Johan Utama, S.H., M.Hum)**	
08.55-09.15		Photo session and Coffee Break	
09.15-10.10	Plenary	• Keynote Speaker I: **Mahardika Pratama, Ph.D**	
10.10-11.05		• Keynote Speaker II: **Prof. A Min Tjoa**	
11.05-12.00		• Keynote Speaker III: **Prof. Riyanarto Sarno**	
12.10-13.00		Lunch	Restaurant (Cafe Delima)
13.00-15.00	Parallel Session I	Six Parallel Sessions (location : TBA)	1 : Borobudur 1 2 : Borobudur 2 3 : Sewu 4 : Mendut 5 : Kalasan 6 : Prambanan

15.00-15.30	Coffee Break		
15.45-17.45	Parallel Session II	Five Parallel Sessions(TBA)	1 : Borobudur 2 Room 2: Sewu Room 3 : Mendut Room 4: Prambanan Room 5 : Kalasan
17.45-18.30	Free Session		
18.30-20.00	Gala Dinner		Borobudur 1 Room

Wednesday,October 30th 2019

● Workshop

PROGRAM SCHEDULE – Parallel Session Schedule

| | | **Parallel Session – Room 1** | | |
| | | **Borobudur I Room (1st Floor) – Software Engineering and Embedded System** | | |
Session	**Time**	**Paper ID**	**Author**	**Title**
Parallel Session 1	13.00 – 13.15	1570580132	Sholiq Sholiq	Testing of Owner Estimate Cost Model with Android-based Application
	13.15 – 13.30	1570586469	Mochamad Umar Al Hafidz; Dana I. Sensuse	The Effect of Knowledge Management System on Software Development Process with Scrum
	13.30 – 13.45	1570590747	Adhistya Erna Permanasari; Wahyu Hidayat; Paulus Insap Santosa; Nur Arfian; Lina Choridah	Conceptual Model for Human Anatomy Learning Based Augmented Reality on Marker Puzzle 3D Printing
	13.45 – 14.00	1570590831	Henry Widjaja; Meyliana Meyliana; Erick Fernando; Surjandy Surjandy; Denardo Grady; Bellarika Liejaya; Mareta Siwi	Development and Validation of Instruments for Evaluation Enterprise Resource Planning on human resource management in Higher Education sector
	14.00 – 14.15	1570590937	Guson Kuntarto; Irwan Prasetya Gunawan; Yossy Alrin	The Key Role of Ontology Alignment and Enrichment Methodologies for Aligning and Enriching Dwipa Ontology with the Weather Concept on the Tourism Domain
	14.15 – 14.30	1570592258	Kun Nursyaiful Priyo Pamungkas; Waskitho Wibisono; Supeno Djanali	An Optimum Clustered Grid-Based Particle Swarm Optimization to Enhance Efficiency Energy in Wireless Sensor Networks
	14.30 – 14.45	1570592535	Sonia Ladasi; Muhammad Rifki Shihab; Achmad Hidayanto; Nur Fitriah Ayuning Budi	Prioritizing Determinants of Internet of Things (IoT) Technology Adoption: Case Study of Agribusiness PT. XYZ
	14.45 – 15.00	1570572991	Mutia Putri; Achmad Hidayanto; Edi Surya Negara; Zaenal Abidin; Prahastiwi Utari; Nur Fitriah Ayuning Budi	Ranking of Game Mechanics for Gamification in Mobile Payment Using AHP-TOPSIS: Uses and Gratification Perspective
	15.00 – 15.30		COFFEE BREAK	
	15.30 – 15.45	1570586951	Wiwien Hadikurniawati; Edy Winarno; Dwi Budi Santoso; Purwatiningtyas Purwatiningtyas	A Mixed Method using AHP-TOPSIS for Dryland Agriculture Crops Selection Problem
	15.45 – 16.00	1570587884	Maria Ulfah Kalijaga; Sayekti Abriani	Verification of a Rule-Based Expert System by Using SAL Model Checker

	16.00 – 16.15	1570592368	Damayanti Elisabeth; Dana I. Sensuse; Shidiq Al Hakim	Implementation of Case-Method Cycle for Case-Based Reasoning in Human Medical Health: A Systematic Review

PROGRAM SCHEDULE – Parallel Session Schedule

Session	Time	Paper ID	Author	Title
Parallel Session – Room 2 Borobudur 2 Room (1st Floor)- Natural Language Processing				
Para llel Sessi on 1	13.00 – 13.15	1570584141	Muhammad Aldiansyah; Priyo Sasongko	Twitter Sentiment Analysis About Public Opinion On 4G Smartfren Network Services Using Convolutional Neural Network
	13.15 – 13.30	1570586777	Agung Tika Wicaksono; Siti Mariyah	Social Network Analysis of Health Development in Indonesia
	13.30 – 13.45	1570586857	Siti Mariyah; Chonan Firda Odayakana Umareta	Fuzzy Semantic-Based String Similarity Experiments to Detect Plagiarism in Indonesian Documents
	13.45 – 14.00	1570587179	Nahda Rosa Ramadhanti; Siti Mariyah	Document Similarity Detection using Indonesian Language Word2vec Model
	14.00 – 14.15	1570589827	Helmi Piliang; Retno Kusumaningrum	Music Emotion Classification Based on Indonesian Song Lyrics Using Recurrent Neural Network
	14.15 – 14.30	1570589878	Afifah Ayuningtyas; Retno Kusumaningrum;	The Question Answering System of Indonesia's History Using Dynamic Memory Networks (DMN) Model
	14.30 – 14.45	1570589880	Yasir Rohman; Retno Kusumaningrum	Twitter Storytelling Generator Using Latent Dirichlet Allocation and Hidden Markov Model POS-TAG (Part-of-Speech Tagging)
	14.45 – 15.00	1570589881	Eko Wahyudi; Retno Kusumaningrum	Aspect Based Sentiment Analysis in E-Commerce User Reviews Using Latent Dirichlet Allocation (LDA) and Sentiment Lexicon
	15.00 – 15.30		COFFEE BREAK	
Para llel Sessi on 2	15.30 – 15.45	1570590850	Nur Idris; Widy Widyawan; Teguh Bharata Adji	Classification of Radicalism Content from Twitter Written in Indonesian Language using Long Short Term Memory

	15.45 – 16.00	1570592362	Herley Al-Ash; Alhadi Bustamam; Petrus Mursanto; Mutia Putri	Ensemble Learning Approach on Indonesian Fake News Classification
	16.00 – 16.15	1570592450	Andi Suciati; Ari Wibisono	Twitter Buzzer Detection for Indonesian Presidential Election
	16.15 – 16.30	1570584958	Saesarinda Juwita; Sukmawati Nur Endah	Classification of Indonesian Music Using the Convolutional Neural Network (CNN) Method
	16.30 – 16.45	1570588387	Fika Rachman; Riyanarto Sarno; Chastine Fatichah	Song Emotion Detection based on Arousal-Valence from Audio and Lyrics using Rule Based Method
	16.45 – 17.00	1570591537	Aghus Sofwan; Imam Santoso; M Arfan; Ajub Ajulian Zahra; Himawan Pradipta	Normal and Murmur Heart Sound Classification Using Linear Predictive Coding and K-Nearest Neighbor Methods
	17.00 – 17.15	1570591673	Muhammad Naufal Furqon; Khadijah Khadijah; Suhartono Suhartono; Retno Kusumaningrum	Indonesian Music Genre Classification on Indonesian Regional Songs using Deep Recurrent Neural Network (DRNN) Method

PROGRAM SCHEDULE – Parallel Session Schedule

Parallel Session – Room 3 Sewu Room (2nd Floor)- Computer in Social Science				
Session	Time	Paper ID	Author	Title
Parallel Session 1	13.00 – 13.15	1570573862	Aisha Adetia; Dana I. Sensuse; Pudy Prima; Regina Carla Handayani; Sari Agustin Wulandari; Peny Rishartati; Sofian Lusa	Factors Influence Knowledge Sharing Through Social Networking Site Case Study: Virtual Community Institut Ibu Profesional (IIP)
	13.15 – 13.30	1570578724	Sholiq Sholiq	Workflow Complexity in Constructive Cost Model II
	13.30 – 13.45	1570581637	Mutia Putri; Achmad Hidayanto; Edi Surya Negara; Nur Fitriah Ayuning Budi; Prahastiwi Utari; Zaenal Abidin	Gratification sought in Gamification on Mobile Payment
	13.45 – 14.00	1570586566	Nadya Safitri; Nur Wulan Pohan; Dana I. Sensuse; Deki Satria; Shidiq Al Hakim	An Assesment of Knowledge Sharing System: SCeLe Universitas Indonesia
	14.00 – 14.15	1570586620	Alvina Rahmi; Satriyo Adhy	Analysis of Server-Based Electronic Money Acceptance Using Partial Least Square Method
	14.15 – 14.30	1570589552	Zikri Irfandi; Muhammad Rifki Shihab; Achmad Hidayanto	eParticipation Provision and Demand Analysis of a Regional Government: Insights from Metro City
	14.30 – 14.45	1570589740	Muhammad Irfan Setiyadi; Bunga Mangiwa; Dinar Mutiara Kusumo Nugraheni	Analysis of E-Commerce using Technology Acceptance Model and Its Interaction With Risk, Enjoyment, Compatibility Variables
	14.45 – 15.00	1570590203	Hafiz Marham; Ragil Saputra	User Continuance in Playing Mobile Online Games Analyzed by Using UTAUT and Game Design
	15.00 – 15.30		COFFEE BREAK	
Parallel Sessi	15.30 – 15.45	1570590222	Aji Supriyanto	Inclusive Security Models To Building E-Government Trust

on 2	15.45 – 16.00	1570590923	Ruth Magdalena; Yova Ruldeviyani; Charles Bernando; Dana I. Sensuse	Methods to Enhance the Utilization of Business Intelligence Dashboard by Integration of Evaluation and User Testing
	16.00 – 16.15	1570590925	Devina Gunadi; Bernardinus Harnadi; Ridwan Sanjaya	Examining the Acceptance of Virtual Assistant - Vanika for University Students
	16.15 – 16.30	1570592461	Apiladosi Priambodo; Putu Wuri Handayani; Ave Adriana Pinem	Success Factor for IT Project Implementation in Banking Industry: A Case Study
	16.30 – 16.45	1570592464	Wulan Lestari; Edy Suharto; Panji Wirawan; Kabul Kurniawan	Trust and Risk for Measuring OnlineTax Application Acceptance

PROGRAM SCHEDULE – Parallel Session Schedule

Parallel Session – Room 4 Mendut Room (2nd Floor) – Computer Vision 1				
Session	**Time**	**Paper ID**	**Author**	**Title**
Parallel Session 1	13.00 – 13.15	1570589823	Ronaldo Kristianto; Adi Wibowo	Selecting the Function of Color Space Conversion RGB / HSL to Wavelength for Fluorescence Intensity Measurement on Android Based Applications
	13.15 – 13.30	1570590271	Vicky Zilvan; Hilman F Pardede; Endang Suryawati; Budiarianto Kusumo; Ade Ramdan; Dikdik Krisnandi	Denoising Convolutional Variational Autoencoders-Based Feature Learning for Automatic Detection of Plant Diseases
	13.30 – 13.45	1570590304	Endang Suryawati; Vicky Zilvan; Raden Sandra Yuwana; Hilman F Pardede; Dadan Rohdiana; Ana Heryana	Deep Convolutional Adversarial Network-Based Feature Learning for Tea Clones Identifications
	13.45 – 14.00	1570590349	Riyanto Sigit; Elvi Triyana; Mochammad Rochmad	Cataract Detection Using Single Layer Perceptron Based on Smartphone
	14.00 – 14.15	1570590689	Zolanda Anggraeni	Detection of the Emergence of Exudate on the Image of Retina Using Extreme Learning Machine Method
	14.15 – 14.30	1570590778	Agus Mulyanto; Rohmat Borman; Purwono Prasetyawan; Wisnu Jatmiko; Petrus Mursanto	Real-Time Human Detection and Tracking using Two sequential frames for Advanced Driver Assistance System
	14.30 – 14.45	1570591706	Rismiyati Rismiyati; Helmie Arif Wibawa	Snake Fruit Classification by Using Histogram of Oriented Gradient Feature and Extreme Learning Machine
	14.45 – 15.00	1570592469	Lavin J. Halawa; Ferda Ernawan; Adi Wibowo	Face Recognition Using Faster R-CNN with Inception-V2 Architecture for CCTV camera
	15.00 – 15.30		COFFEE BREAK	
Parallel Session 2	15.30 – 15.45	1570592489	Puteri Khatya Fahira; Ari Wibisono; Hanif A Wisesa; Zulia Putri Rahmadhani; Petrus Mursanto	Sumatra Traditional Food Image Classification Using Classical Machine Learning
	15.45 – 16.00	1570592541	Sukmawati Nur Endah; Eko Sarwoko; Priyo Sasongko; Roihan Auliya Ulfattah; Saesarinda Juwita	Attribute Selection for Detection of Soybean Plant Disease and Pests

PROGRAM SCHEDULE – Parallel Session Schedule

Session	Time	Paper ID	Author	Title
		Parallel Session – Room 5 **Kalasan Room (2nd Floor)- Computer Vision 2**		
Parallel Session 1	13.00 – 13.15	1570578834	Tien-Hsiung Weng; Yohan Anggawijaya; Rosita Herawati	Energy Aware Parking Lot Availability Detection using YOLO on TX2
	13.15 – 13.30	1570584133	Muhammad Hilmy; Priyo Sasongko	Ensembles of Convolutional Neural Networks for Skin Lesion Dermoscopy Images Classification
	13.30 – 13.45	1570585756	Surjandy Surjandy; Erick Fernando; Meyliana Meyliana; Ferianto Surya Wijaya; Theresia Swasti; Kristianus Oktriono	Analysis of Reliance Factors in the Text, Images and Videos on Social Media
	13.45 – 14.00	1570586344	Indah Agustien Siradjuddin; Mochammad Kautsar Sophan	Feature Extraction using Self-Supervised Convolutional Autoencoder for Content based Image Retrieval
	14.00 – 14.15	1570586874	Randy Wihandika	Improved Line Operator for Retinal Blood Vessel Segmentation
	14.15 – 14.30	1570586902	Mawanda Almuhayar; Henry Horng-Shing Lu; Nur Iriawan	Classification of Abnormality in Chest X-Ray Images by Transfer Learning of CheXNet
	14.30 – 14.45	1570587255	Maulana Ihsan; Adhi Harmoko Saputro; Windri Handayani	Hyperspectral Imaging Feature Selection Using Regression Tree Algorithm: Prediction of Carotenoid Content of Velvet Apple Leaf
	14.45 – 15.00	1570587315	Femilia P Mayranti; Adhi Harmoko Saputro; Windri Handayani	Chlorophyll A and B Content Measurement System of Velvet Apple Leaf in Hyperspectral Imaging
	15.00 – 15.30		COFFEE BREAK	
Parallel Session 2	15.30 – 15.45	1570589376	Rizqi Hadi Prawira; Adi Wibowo	Best Parameters Selection of Arrhythmia Classification Using Convolutional Neural Networks
	15.45 –	1570586564	Priyamvada Pushkar Huddar;	Acquiring domain knowledge for

	16.00		Sumedh Sontakke	Cardiotocography: A Deep Learning Approach

PROGRAM SCHEDULE – Parallel Session Schedule

			Parallel Session – Room 6	
			Prambanan Room (2nd Floor) – Machine Learning & Computation	
Session	**Time**	**Paper ID**	**Author**	**Title**
Parallel Session 1	13.00 – 13.15	1570574076	Johan Eko Purnomo; Sukmawati Nur Endah	Rating Prediction on Movie Recommendation System: Collaborative Filtering Algorithm (CFA) vs. Dissymetrical Percentage Collaborative Filtering Algorithm (DSPCFA)
	13.15 – 13.30	1570574393	Amazona Adorada; Adi Wibowo	Genetic Algorithm-Based Feature Selection and Optimization of Backpropagation Neural Network Parameters for Classification of Breast Cancer Using MicroRNA Profiles
	13.30 – 13.45	1570586794	Noor Ifada; Mochammad Kautsar Sophan; Irvan Syachrudin; Selgy Zahranida Sugiharto	An efficient scheme to combine the user demographics and item attribute for solving data sparsity and cold-start problems
	13.45 – 14.00	1570587396	Wiwik Anggraeni; Dina Nandika; Faizal Mahananto; Yeyen Sudiarti; Cut Fadhilla	Diphtheria Case Number Forecasting using Radial Basis Function Neural Network
	14.00 – 14.15	1570588154	Serenada Shafira; Nadya Ulfa; Helmie Arif Wibawa; Rismiyati Rismiyati	Facial Expression Recognition using Extreme Learning Machine
	14.15 – 14.30	1570588871	Phyllalintang Nafasa; Indra Waspada; Nurdin Bahtiar; Adi Wibowo	Implementation of Alpha Miner Algorithm in Process Mining Application Development for Online Learning Activities Based on MOODLE Event Log Data
	14.30 – 14.45	1570590890	Moh Abdul Latief; Titin Siswantining; Alhadi Bustamam; Devvi Sarwinda	A Comparative Performance Evaluation of Random Forest Feature Selection on Classification of Hepatocellular Carcinoma Gene Expression Data
	14.45 – 15.00	1570592479	Annisa Andarrachmi; Wahyu Catur Wibowo	Data Mining Implementation for Monitoring Network Intrusion
	15.00 – 15.30		COFFEE BREAK	
Parallel Session 2	15.30 – 15.45	1570592491	Ridha Ferdhiana; Taufik F. Abidin; Khairul Amri	Clustering of Districts in Indonesia using the 2015 High School Social Sciences National Examination Results
	15.45 – 16.00	1570583380	Fuad Dary Rosyadi; Waskitho Wibisono; Tohari Ahmad; Royyana Ijtihadie; Ary	An Energy-Aware Computation Offloading Framework for a Mobile Crowdsensing Cluster Using DMIPS

			Mazharuddin Shiddiqi	Approach
	16.00 – 16.15	1570586690	Emha Fathul Akmam; Titin Siswantining; Saskya Soemartojo; Devvi Sarwinda	Multiple Imputation with Predictive Mean Matching Method for Numerical Missing Data
	16.15 – 16.30	1570590692	Laatansa Imroni; Ragil Saputra; Beta Noranita	Analysis of GPGPU-Based Brute-Force and Dictionary Attack On SHA-1 Password Hash
	16.30 – 16.45	1570590707	Usman Sudibyo; Cinantya Paramita	Multi-Layered Encryption Method
	16.45 – 17.00	1570586745	Nurzaman Nurzaman; Titin Siswantining; Saskya Soemartojo; Devvi Sarwinda	Application of Sequential Regression Multivariate Imputation Method on Multivariate Normal Missing Data
	17.00 – 17.15	1570590708	Samuel Zico Christopher; Titin Siswantining; Devvi Sarwinda; Alhadi Bustamam	Missing Value Analysis of Numerical Data using Fractional Hot Deck Imputation
	17.15 – 17.30	1570586080	Oxapisi V Adikhresna; Retno Kusumaningrum; Budi Warsito	Comparative Experimental Study of Multi Label Classification using Single Label Ground Truth with Application to Field Majoring Problem
	17.30 – 17.45	1570589789	Fajar Agung Nugroho; Tom Ederveen; Adi Wibowo; Jos Boekhorst; Marien de Jonge; Tom Heskes	Application of A Causal Discovery Model to Study The Effect of Iron Supplementation in Children With Iron Deficiency Anemia

PROGRAM SCHEDULE GALA DINNER

Tuesday, October 29th, 2019

Time	Event Details	Rooms
18.30-19.00	Registration	Borobudur 1 Room
19.00	Gala Dinner Starts	
19.10-19.15	Welcome Speech Head of Departement of Informatics **(Dr. Retno Kusumaningrum, S.Si, M.Kom)**	
19.15-19.20	Appreciation to Sponsor : by Dean of Faculty Sciences and Mathematics 1. Bank Mandiri 2. Dinas Perhubungan Kota Semarang	
19.20-19.30	Saman Dance	
19.30-19.35	Best Presenter (presented by Head of Departement)	
19.35-19.40	Song by MOI	
19.40-19.45	Best Paper (Presented by IEEE Indonesia Section Representastion)	
19.45-Selesai	Free Dinner Section MOI Perform	

PROGRAM SCHEDULE WORKSHOP

Wednesday, October 30th, 2019

Time	Event Details	Rooms
08.00-08.30	Registration	Borobudur 1 & 2 Room ***)**
08.30-09.30	Theoritical Session	
09.30-10.00	Coffee Break	
10.00-12.00	Practical Session	
12.00	Lunch	Restaurant (Cafe Delima)

*) Deep Learning (Prof. Ir. Riyanarto Sarno, SE, MSc, PhD) – (Borobudur 1)
Process Mining (Mahardhika Pratama, Ph.D)– (Borobudur 2)

KEYNOTE SPEAKER 1

Autonomous Deep Learning: Continual Learning Approach for Dynamic Environments

Mahardika Pratama, Ph.D.

Nanyang Technological University, Singapore

Abstract

The feasibility of deep neural networks (DNNs) to address data stream problems still requires intensive study because of the static and offline nature of conventional deep learning approaches. A deep continual learning algorithm, namely autonomous deep learning (ADL), is proposed in this paper. Unlike traditional deep learning methods, ADL features a flexible structure where its network structure can be constructed from scratch with the absence of initial network structure via the self-constructing network structure. ADL specifically addresses catastrophic forgetting by having a different-depth structure which is capable of achieving a trade-off between plasticity and stability. Network significance (NS) formula is proposed to drive the hidden nodes growing and pruning mechanism. Drift detection scenario (DDS) is put forward to signal distributional changes in data streams which induce the creation of a new hidden layer. Maximum information compression index (MICI) method plays an important role as a complexity reduction module eliminating redundant layers. The efficacy of ADL is numerically validated under the prequential test-then-train procedure in lifelong environments using nine popular data stream problems. The numerical results demonstrate that ADL consistently outperforms recent continual learning methods while characterizing the automatic construction of network structures.

Profile

Dr. Mahardhika Pratama received his PhD degree from the University of New South Wales, Australia in 2014. Dr. Pratama is a tenure-track assistant professor at the School of Computer Science and Engineering, Nanyang Technological University, Singapore. He worked as a lecturer at the Department of Computer Science and IT, La Trobe University from 2015 till 2017. Prior to joining La Trobe University, he was with the Centre of Quantum Computation and Intelligent System, University of Technology, Sydney as a postdoctoral research fellow of Australian Research Council Discovery Project.

Dr. Pratama received various competitive research awards in the past 5 years, namely the Institution of Engineers, Singapore (IES) Prestigious Engineering Achievement Award in 2011, the UNSW high impact publication award in 2013 and 2014, IEEE TFS prestigious publication award in 2018, Amity researcher award. Dr. Pratama has published in top journals and conferences and edited one book, and has been invited to deliver keynote speeches in international conferences. Dr. Pratama has led five special sessions and two special issues in prestigious conferences and journals. He currently serves as an editor in-chief of International Journal of Business Intelligence and Data Mining and a consultant at Lifebytes, Australia. Dr. Pratama is a member of IEEE, IEEE Computational Intelligent Society (CIS) and IEEE System, Man and Cybernetic Society (SMCS), and Indonesian Soft Computing Society (ISC-INA). His research interests involve autonomous deep learning, data stream, control system, predictive maintenance and autonomous vehicle.

KEYNOTE SPEAKER 2

ICT Access and Research as a Foundation for Achieving Sustainable Development Goals where No One Should be Left Behind

Prof. A Min Tjoa

TU Wien Austria

Abstract

Digital development is a main driver to achieving all of the seventeen Sustainable Development Goals. Access to Internet (especially to Internet Broadband) and to a rich digital content in local languages is the precondition for the development of nations.

Research and applications in the area of Big Data and the Internet of Things based on Digitization are a prerequisite for the optimization of existing business and the creation of new products, services and innovative industries.

Big Data research of the twenty first century is an essential enabler of scientific breakthroughs towards advanced forecast of natural disasters and epidemics, efficient e-government (based on significantly improved government-citizen relationships) and other possible useful applications to eradicate poverty.

The potential of research and development in the area of Internet of Things is an important driver in important national sectors such agriculture, water management, energy management, traffic, urban development and health.

Furthermore, both Big Data and Internet of Things are the enablers for enterprise develop¬ment towards a more personalized marketing and efficient supply chain management.

Research in the area of Visualization of Big Data can significantly contribute to the decision making process in all sectors of the economy.

Another disruptive development can be stated in the advent of 3D-printing leading to huge reductions of production costs with implications on the labor market. For the developing world, 3D-printing could advance as a technology in a circular economy which leapfrogs manufacturing by producing large numbers of products on demand in remote areas.

Generally, Digitization will have a tremendous impact on the future of work through its potential to take over many cognitive and physical work tasks. Robotics, Blockchain and Artificial Intelligence will revolutionize economies throughout the world. Building of Human Capacity, digital competencies and skills to address the challenge of digital automation is a priority task in all countries. The potential of innovative technologies for education (for example, Massive Online Open Courses and Virtual Reality Learning) and Citizen Science will be discussed.

Finally we will address on the opportunities and threats of rapid technological changes triggered by ICT-Research and Digitalization on the economic development with the intent to achieve the Sustainable Development Goals where " No one should be left behind".

Profile

Professor Dr. A Min Tjoa has been a full professor and director of the Institute of Software Technology and Interactive Systems at the Vienna University of Technology since 1994. He is the chairman of the Austrian National Competence Center for Security Research (Competence Centers for Excellent Technologies Initiative of the Austrian government). He was visiting professor at the Universities of Zurich, Kyushu and Wroclaw (Poland) and at the Technical Universities of Prague and Lausanne (Switzerland). From 1999 to 2003, he was the president of the Austrian Computer Society. He is vice-chairman of the IFIP Technical Committee for Information Systems and chairman of the IFIP Working Group on Enterprise Information Systems. Member of the Board (Senate) of the Christian Doppler Foundation for the establishment of high-technology transfer labs in Austria. He is also the University of Technology's Coordinator of the ASEA-UNINET (ASEAN-EU University Network) and Vice-Chairman of the DEXA Association (Database and Expert System Applications). He has served as chairman of several international conferences including the IEEE Int. Conf. on Distributed Computing Systems(ICDCS), European Software Engineering Conference (ESEC), ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE), the International Conference on Database and Expert Systems Applications (DEXA), the International Conference on Electronic Commerce and Web Technologies (EC-Web). He was Honorary Chairman of the International Conference on Very Large Databases (VLDB 2007). In 2011 he received the honorary doctoral degree (Dr.h.c.) from the Czech Technical University in Prague and the honorary professor degree of the University of Hue (Vietnam). He is currently member of the Council of Doctoral Studies in Mathematics, Informatics and Telecommunication (Conseil de l' Ecole Doctorate Mathématique, Informatique et Telecommunications de Toulouse) which covers all universities in the Toulouse area. His current research focus areas are data warehousing, cloud computing, semantic web, security, and non-standard IT-applications. He has published more than 200 peer reviewed articles in journals and conferences.

KEYNOTE SPEAKER 3

Process Mining for Process-Aware Information Systems

Prof. Ir. Riyanarto Sarno, SE, MSc, PhD.

Institut Teknologi Sepuluh Nopember, Indonesia

Abstract

Process-Aware Information System (PAIS) is an information system which can be reconfigured based on determined business processes. The process of reconfiguration is carried out by using Enterprise Service Bus in Service-oriented Architecture (SOA). PAIS is also useful for Process Mining that consists of Process Discovery, Conformance Checking, and Enhancement. Process discovery constructs a process model based on event log. Conformance checking compares Standard Operation Procedure (SOP) with a process model discovered from event log to analyze some issues, such as bottleneck and fraud. Enhancement improves the efficiency of time and cost of the process model. The characteristics of Enterprise data in Industry 4.0 are high in volume, variety, velocity, and veracity; therefore, the data processing requires Big Data Analytics and Artificial Intelligence (AI). This research discusses the latest algorithms of process mining and advantages of Big Data Analytics and Artificial Intelligence for supporting Process Mining in Process-Aware Information Systems.

Profile

Prof. Ir. Riyanarto Sarno, SE, MSc, PhD since 2003 is a Professor in Software Engineering at ITS Surabaya, born in Surabaya in 1959. Education from elementary to high school was completed in Surabaya. Graduated with a Bachelor of Electrical Engineering at ITB in 1983 and a Bachelor of Economics at UNPAD in 1985. He completed his Masters (MSc) and Doctor (PhD) in Computer Science at the University of New Brunswick Canada in 1988 and 1992.

At ITS, he served as Chair of the Center for Computer Research and Information Systems, Chair of the Community Service Institute, Head of the Software Engineering Laboratory and Dean of the Faculty of Information Technology. In order to establish international relations, he was appointed as Adjunct Professor at the University of New Brunswick Canada from 2004 to 2008. Now as a member of the Board of Trustees of ITS 2016-2021.

Prof. Riyanarto is also active in various national professional organizations PII, ISEI, EKONID and CALINDO. International professional organizations attended included the Institute of Electrical and Electronics Engineers (IEEE), the Association for Computing Machinery (ACM) and the Information Systems Audit and Control Association (ISACA). The fondness for various types of sports led him to become Deputy Chairperson of PBSI East Java 2008-2010.

His expertise in the field of Information Technology is often applied in cooperation in private companies and SOEs. He once assisted the East Java Provincial Government as an Expert Council, and as an Expert in the East Java Provincial Parliament.