



Book of Program

*The 1st International Conference on Informatics
and Computational Sciences (ICICoS 2017)*

15-16 November 2017
Semarang, Central Java, Indonesia

Technically sponsored by:



Organized by:
Department of Informatics
Faculty of Science and Mathematics
Universitas Diponegoro
mail : icicos@if.undip.ac.id

WELCOME MESSAGE FROM GENERAL CHAIR

On behalf of the organizing committee, I am delighted to welcome all participants to the 1st International Conference on Informatics and Computational Sciences (ICICoS 2017). This conference is the first international conference held by Department of Informatics, Universitas Diponegoro and took place in Santika Premiere Hotel, Semarang from November 15th to November 16th, 2017.

This conference aims to provide a platform for researchers, academicians, professionals, engineers, and students to share their research ideas and results of research especially in the field of informatics, computational science and related field.

In this conference, the committee decided to choose the following theme: **“Enhancing the Role of Informatics and Computational Science in the Era of Data Science”**. This highlight is chosen to acknowledge the importance of data science field and hence further motivate researchers, academicians, professionals, engineers, and students to perform study on this field.

Nearly 150 academicians, researcher, practitioner and presenters from 7 countries (Australia, Austria, Croatia, Indonesia, Japan, Malaysia, and United States of America) have gathered and 101 papers are submitted for this conference. Each paper has been reviewed with tight criteria from our invited reviewers. Based on the review result, 46 papers have been accepted, which lead to an acceptance rate of 45.5%.

This conference will not be successful without extensive effort from many parties. I would like to express my sincere gratitude and appreciation to all participants who participate in this conference. Special acknowledgement should go to the TPC chairs and Technical Program Committee Member for their thorough and timely reviewing of the papers. We would also like to thank our sponsors, PT Telekomunikasi Indonesia and PT Bank Mandiri, who have helped us to keep down the costs of ICICoS 2017 for all participants. Recognition should go to the Local Organizing Committee members, my colleagues and students from Department of Informatics, Faculty of Science and Mathematics, Universitas Diponegoro, who have put enormous effort and support for this conference.

At last, we hope that you have an enjoyable and inspiring moment during our conference. Thank you for your participation on ICICoS 2017.

Dr. Retno Kusumaningrum, S.Si., M.Kom.
General Chair, ICICoS 2017

CONFERENCE INFORMATION

Dates	November 15 th (Wednesday) – November 16 th (Thursday) 2017
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 Faculty of Science and Mathematics Universitas Diponegoro Building E, 3rd Floor, Tembalang Semarang, Indonesia 50275 T: (+62) 24 7474754 ext. 5000 F: (+62) 24 76480690 E: icicos@if.undip.ac.id W: http://www.if.undip.ac.id
Conference Website	http://icicos.org

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VENUE MAP

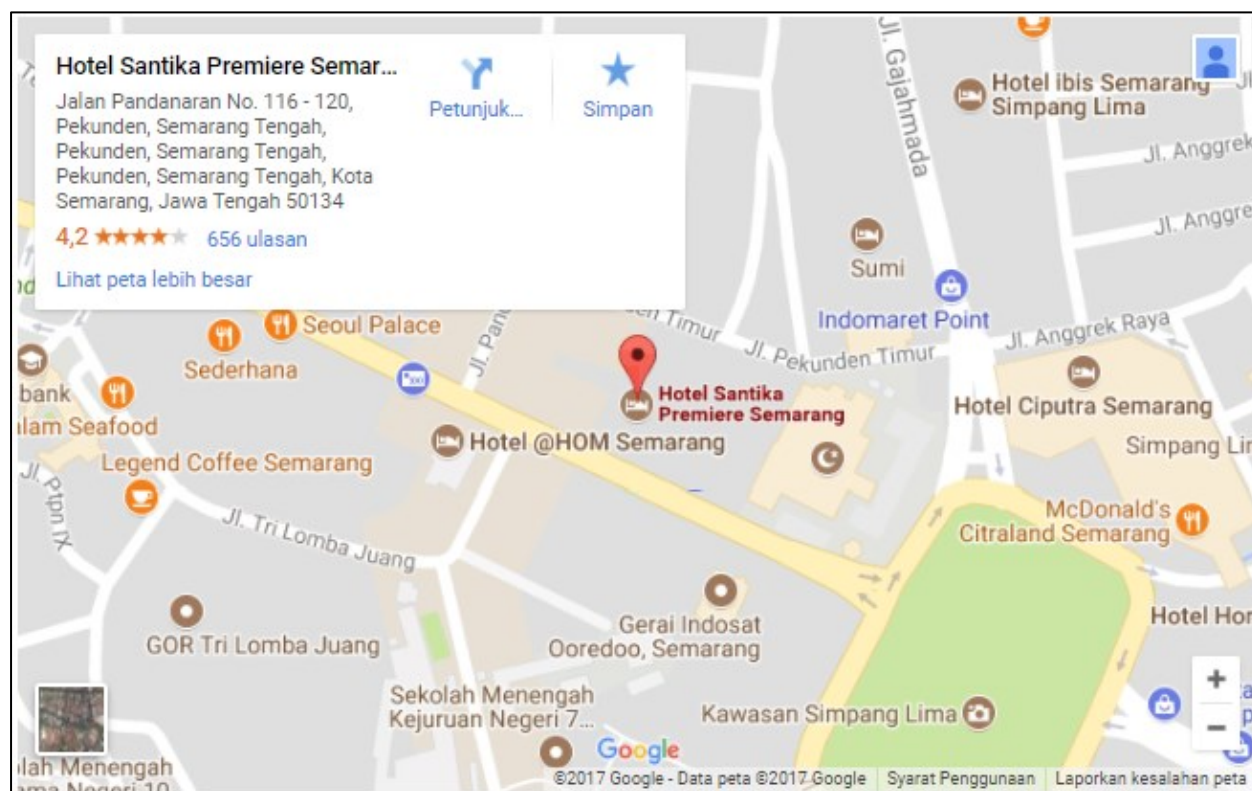
Santika Premiere Hotel

Jl. Pandanaran No. 116-120

Semarang City, Central Java

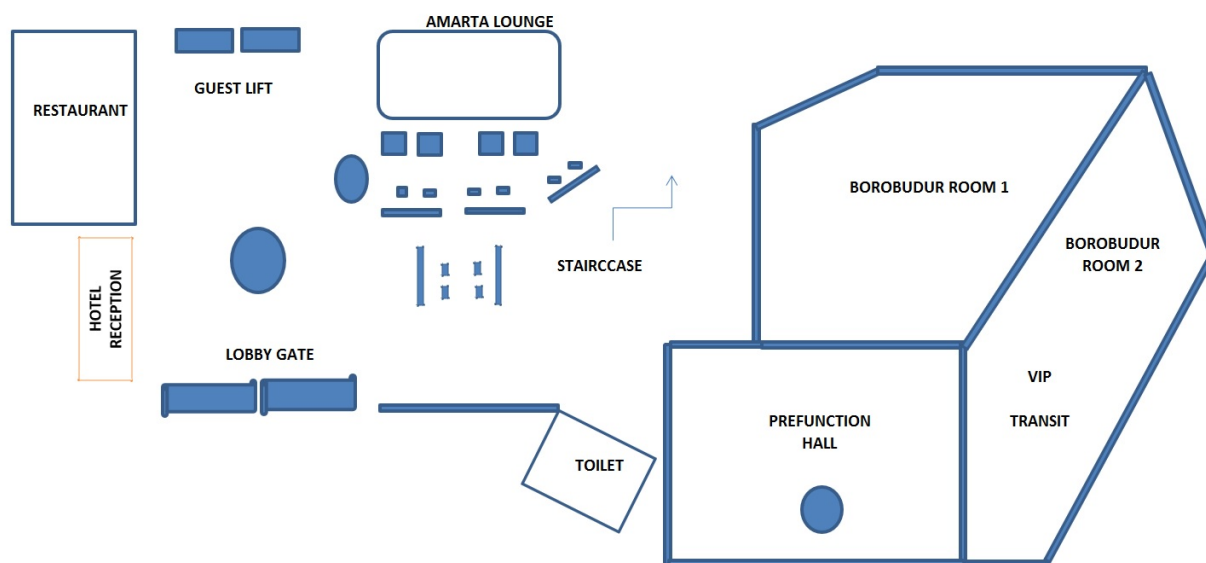
Indonesia, 50134

Phone: (024) 8413115



Venue Map

First Floor of Santika Premiere Hotel

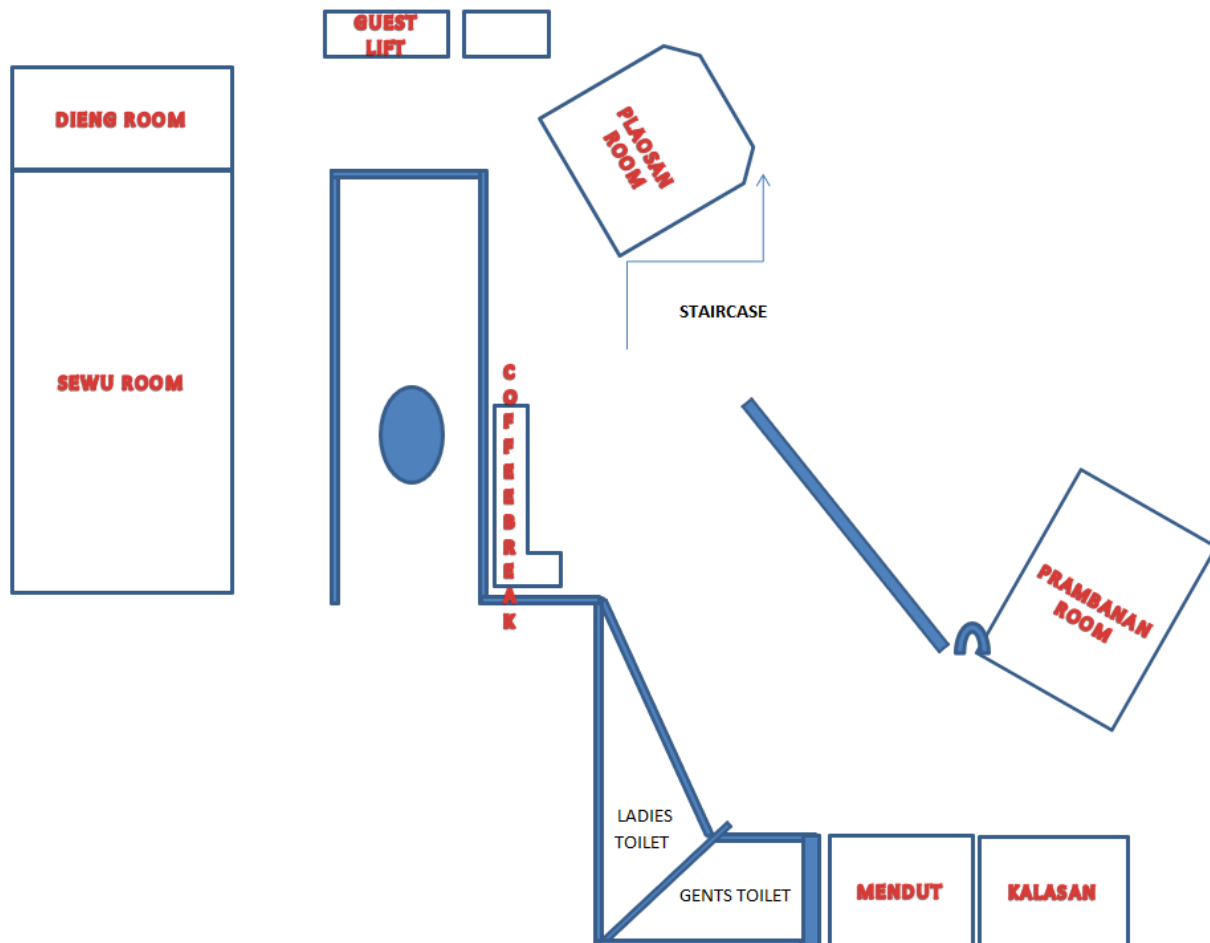


Note:

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 200	USD 250
	Non-IEEE Member	USD 250	USD 300
	Student	USD 150	USD 200
	IEEE Student Member	USD 100	USD 150
	Participant	USD 75	USD 100
	Additional Paper	-	USD 150
Local (Indonesia)	IEEE Member	IDR 1.500.000	IDR 2.000.000
	Non-IEEE Member	IDR 2.000.000	IDR 2.500.000
	Student	IDR 1.500.000	IDR 2.000.000
	IEEE Student Member	IDR 1.000.000	IDR 1.500.000
	Participant	IDR 500.000	IDR 750.000
	Additional Paper	-	IDR 1.250.000

***) Before September 15th, 2017*

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

Wednesday November 15th, 2017

Time	Event	Event Details	Rooms
07.30-08.30	Registration		Borobudur 1 Room
08.30-08.40	Opening Ceremony	Opening speech from the General Chair of ICICoS 2017 (Dr. Retno Kusumaningrum, S.Si., M.Kom.)	
08.40-08.50		Opening speech from the Dean of Faculty of Science and Mathematics, Universitas Diponegoro (Prof. Dr. Widowati M.Si.)	
08.50-09.00		Opening Speech from the Rector Universitas Diponegoro (Prof. Dr. Yos Johan Utama, S.H., M.Hum.)	
09.00-09.15		Photo session	
09.15-10.05	Plenary Session I	Keynote Speaker I Dr. Denise de Vries The Future of Data Science Depends on Providing for Data Preservation Now	Borobudur 1 Room
10.05-10.10		Ceremonial gift, from the Dean of Faculty of Science and Mathematics Universitas Diponegoro to Dr Denise de Vries	
10.10-10.40	Coffee Break		
10.40-11.30	Plenary Session II	Keynote Speaker II Associate Prof. Dr Kosuke Sekiyama Visual Cognitive Sharing and Cognitive Support for Human-Robot Cooperation	Borobudur 1 Room
11.30-11.35		Ceremonial gift, from the Head of Informatics Department, Universitas Diponegoro to Associate Prof. Dr Kosuke Sekiyama	
11.35-11.45	ICICoS Photo Session		
11.45-13.00	Lunch		Restaurant

13.00-15.00	Parallel Session I	Four Parallel Sessions	Borobudur 1 Room, Sewu Room, Prambanan Room, Kalasan Room
15.00-15.30	Coffee Break		
15.30-17.00	Parallel Session II	Four Parallel Sessions	Borobudur 1 Room, Sewu Room, Prambanan Room, Kalasan Room
17.00-18.30	Free Session		
18.30-21.00	Gala Dinner ^{*)}		Borobudur 1 Room

^{*)} Certificate can be collected during Gala Dinner

Thursday, November 16th, 2017

- Half Day City Tour

PROGRAM SCHEDULE – Parallel Session Schedule

Parallel Session – Room 1 Prambanan Room (Second Floor)				
Session	Time	Paper ID	Author	Title
Parallel Session 1	13.00 – 13.15	3	Candra Irawan, De Rosal Ignatius Moses Setiadi, Christy Atika Sari and Eko Hari Rachmawanto	Hiding and Securing Message on Edge Areas of Image using LSB Steganography and OTP Encryption
	13.15 – 13.30	10	Devvi Sarwinda, Alhadi Bustamam and Ari Wibisono	A Complete Modelling of Local Binary Pattern for Detection of Diabetic Retinopathy
	13.30 – 13.45	56	Teny Handhayani, Janson Hendryli and Lely Hiryanto	Comparison of Shallow and Deep Learning Models for Classification of Lasem Batik Patterns
	13.45 – 14.00	76	I Made Oka Widyantara, I Made Dwi Putra Asana, Ni Made Ary Esta Dewi Wirastuti and Ida Bagus Putu Adnyana	Gamma Correction-Based Image Enhancement and Canny Edge Detection for Shoreline Extraction from Coastal Imagery
	14.00 – 14.15	59	Latifa Nabila Harfiya, Agus Wahyu Widodo and Randy Cahya Wihandika	Offline Signature Verification Based on Pyramid Histogram of Oriented Gradient Features
	14.15 – 14.30	62	Muhammad R. Wiratama, Sukmawati N. Endah, Retno Kusumaningrum and Helmie A. Wibawa	Pornography Object Detection Using Viola-Jones Algorithm and Skin Detection
	14.30 – 14.45	82	Muhammad Ihsan Mas, Mohamad Ivan Fanany, Timotius Devin and Lintang A. Sutawika	Constant-Amplitude Fatigue Crack Growth Sequence Regression on an Aircraft Lap Joint Using a 1-D Convolutional Network
	14.45 – 15.00	95	Muhammad Khaerul Anam, Eko Adi Sarwoko, Edy Suharto and Kharis Khasburrahman	Random Pixel Embedding for Hiding Secret Text Over Video File
	15.00 – 15.30	COFFEE BREAK		
Parallel Session 2	15.30 – 15.45	28	Muhammad Najih, De Rosal Ignatius Moses Setiadi, Eko Hari Rachmawanto, Christy Atika Sari and Setia Astuti	An Improved Secure Image Hiding Technique Using PN-Sequence Based On DCT-OTP
	15.45 – 16.00	47	Putu Desiana Wulaning Ayu and Gede Angga Pradipta	Egg's Diameter Detection Using Fuzzy C-Means and Iterative Random Hough Transform
	16.00 –	93	Rismiyati Rismiyati, Khadijah Khadijah and Adi Nurhadiyatna	Deep Learning for Handwritten Javanese Character Recognition

	16.15			
	16.15 – 16.30	6	Sukmawati N. Endah, Helmie A. Wibawa and Retno Kusumaningrum	Skin Detection Based on Local Representation of YCbCr Color Moment
	16.30 – 16.45	46	Gede Angga Pradipta and Putu Desiana Wulaning Ayu	Fetal Weight Prediction Based on Ultrasound Image Using Fuzzy C Means Clustering and Iterative Random Hough Transform

Parallel Session – Room 2 Sewu Room (First Floor)				
Session	Time	Paper ID	Author	Title
Parallel Session 1	13.00 – 13.15	37	Dinar Mutiara Kusumo Nugraheni and Denise de Vries	The effectiveness of SMS as verification of flood early warning messages from users' perception
	13.15 – 13.30	61	Dodisutarma Lapihu, Mustafid and R. Rizal Isnanto	IT Governance in Public Organization Based on ITBSC and COBIT 5: The Case of Kupang Municipality
	13.30 – 13.45	71	Oerianto Guyandi, Teguh Sri Widadi, Gunawan Wang, Rini Kurnia Sari, Hartiwi Prabowo	Assessing Bike Sharing Business Model
	13.45 – 14.00	73	Hadiana Ana	Interface Modeling for Mobile Learning Using Kansei Engineering and Analytical Hierarchy Process
	14.00 – 14.15	13	Ida Bagus Kresna Sudiatmika, Rupika Jimbara and Djoko Budiyoanto Setyohadi	Determination of Assistance to The Poor by Integrating Fuzzy AHP and TOPSIS Models: Case Study Bali Province
	14.15 – 14.30	30	Ni Putu Indah Rosita Devy, Sunu Wibirama and Paulus Insap Santosa	Evaluating User Experience of English Learning Interface Using User Experience Questionnaire and System Usability Scale
	14.30 – 14.45	52	Oktavianus Lumasuge, Vincencius Gunawan and Catur Edi Widodo	Implementation Analytic Network Process Method and Geographic Information System to Determine the Freshwater Fish Farming Location
	14.45 – 15.00	100	Peb R. Aryan, Elmar Kiesling, Kabul Kurniawan and A Min Tjoa	RMLx: Mapping Interface for Integrating Open Data with Linked Data Exploration Environment
	15.00 – 15.30	COFFEE BREAK		
Parallel Session 2	15.30 – 15.45	29	Prabaria Vesca Yulianandra, Sunu Wibirama and Paulus Insap Santosa	Examining the Effect of Website Complexity and Task Complexity in Web-Based Learning Management System
	15.45 – 16.00	7	Rianto, Djoko Budiyoanto Setyohadi and Suyoto	AHP-TOPSIS on Selection of New University Students and the Prediction of Future Employment
	16.00 – 16.15	51	Rz Abdul Aziz, Muhammad Fauzan Azima and Suhendro Yusuf Irianto	Development of Knowledge Management System for Determining Organizational Culture in Micro Small and Medium Enterprises Using

				Organizational Culture Assessment Instrument
	16.15 – 16.30	97	Satriyo Adhy, Beta Noranita, Retno Kusumaningrum, Dimas Dwi Prasetya, Panji Wisnu Wirawan and Fauzanil Zaki	Usability Testing of Weather Monitoring on a Web Application

Parallel Session – Room 3 Borobudur 1 Room (Second Floor)				
Session	Time	Paper ID	Author	Title
Parallel Session 1	13.00 – 13.15	53	A. Steven, G.F. Hertono and B.D. Handari	Implementation of Clustered Ant Colony Optimization in Solving Fixed Destination Multiple Depot Multiple Traveling Salesman Problem
	13.15 – 13.30	66	Fadil Maulana and Sukmawati Nur Endah	Comparison Selection of Attributes in Preprocessing Data for Diagnosis Of Diabetes
	13.30 – 13.45	72	I Nyoman Rudy Hendrawan and I Gusti Ngurah Wikranta Arsa	Zolertia Z1 Energy Usage Simulation with Cooja Simulator
	13.45 – 14.00	24	Jatmiko Endro Suseno and Muhammad Burhanudin	The Signal Processing of Heart Sound from Digital Stethoscope for Identification of Heart Condition Using Wavelet Transform and Neural Network
	14.00 – 14.15	89	Khadijah, Rismiyati and Aprinaldi Jasa Mantau	Multiclass Classification of Cancer Based on Microarray Data Using Extreme Learning Machine
	14.15 – 14.30	80	Kharis Khasburrahman, Adi Wibowo, Hairulazwan bin Hashim, Indra Waspada, and Wisnu Jatmiko	Comparison of Diagnostics Set and Feature Selection for Breast Cancer Classification based on microRNA Expression
	14.30 – 14.45	98	Muhammad Fahmi Mukhlisin, Ragil Saputra and Adi Wibowo	Predicting House Sale Price using Fuzzy Logic, Artificial Neural Network and K-Nearest Neighbor
	14.45 – 15.00	90	Nico Surantha, Sani M. Isa, Tri Fennia Lesmana and I Made Agus Setiawan	Sleep Stage Classification using SVM and PSO
	15.00 – 15.30	COFFEE BREAK		
Parallel Session 2	15.30 – 15.45	96	Priyo Sidik Sasongko, Helmie Arif Wibawa, Fadil Maulana and Nurdin Bachtiar	Performance Comparison of Artificial Neural Network Models for Dengue Fever Disease Detection
	15.45 – 16.00	94	Sukmawati Nur Endah, Shavira Ifrinda Nadianada, Aris Puji Widodo, Muhammad Lukman Fariq and Fadil Maulana	Beyond Back-Propagation Learning for Diabetic Detection: Convergence Comparison of Gradient Descent, Momentum and Adaptive Learning Rate
	16.00 – 16.15	69	Syahrul and M. Ghazali	Design and Implementation of Tipping-Bucket Rain Gauge

	16.15 – 16.30	74	Tarno, Sugito, Agus Rusgiyono and Budi Warsito	Inference Procedure Based on LM-Test in ANFIS for Constructing Time Series Model
	16.30 – 16.45	17	Yoga Pristyanto, Noor Akhmad Setiawan and Igi Ardiyanto	Hybrid Resampling to Handle Imbalanced Class on Classification of Student Performance in Classroom
	16.45 – 17.00	33	Ichsani Mursidah and Hendri Murfi	Analysis of Initialization Methods on a Fuzzy C-Means Algorithm Based on Singular Value Decomposition for Topical Detection

Parallel Session – Room 4 Kalasan Room (Second Floor)				
Session	Time	Paper ID	Author	Title
Parallel Session 1	13.00 – 13.15	39	Devi Munandar, Endang Suryawati, Dianadewi Riswantini, Achmad Fatchuttamam Abka, Rini Wijayanti and Andria Arisal	POS-Tagging for Non-English Tweets: An Automatic Approach (Study in Bahasa Indonesia)
	13.15 – 13.30	35	Ika Dwi Novitasari, Hendri Murfi and Arie Wibowo	Finding Anchor Words of Separable-Nonnegative Matrix Factorization based on Singular Value Decomposition
	13.30 – 13.45	34	Kartika Syskya Wydya, Hendri Murfi and Yudi Satria	Evaluation of the Accuracy of Transfer Learning on Sentiment Analysis for Indonesian Tweets
	13.45 – 14.00	11	Muljono, Umriya Afini and Catur Supriyanto	Morphology Analysis for Hidden Markov Model based Indonesian Part-of-Speech Tagger
	14.00 – 14.15	92	Noviantho, Sani Muhamad Isa and Livia Ashianti	Cyberbullying Classification using Text Mining
	14.15 – 14.30	77	Rifki Adhitama, Retno Kusumaningrum and Rahmat Gernowo	Topic Labeling Towards News Document Collection Based on Latent Dirichlet Allocation and Ontology
	14.30 – 14.45	101	Risma Mustika Cahyaningtyas, Retno Kusumaningrum, Sutikno, Suhartono and Djalal Er Riyanto	Emotion Detection of Tweets in Indonesian Language Using LDA and Expression Symbol Conversion

PROGRAM SCHEDULE – Gala Dinner**Wednesday November 15th, 2017**

Time	Events	Rooms
18.30-19.00	Registration	Borobudur 1 Room
19.00-19.10	Welcome speech from the General Chair of ICICoS 2017 (Dr. Retno Kusumaningrum, S.Si., M.Kom.)	
19.10-19.15	Performance: MOI band	
19.15-19.20	Sponsor recognition Ceremonial gift, from the ICICoS 2017 Chair to the sponsors	
19.20-19.30	Performance: Javanese traditional Dance Warak Dugder Dance	
19.30-19.35	Announcement for best presenters and Ceremonial gift, from the Head of Informatics Department, Faculty of Science and Mathematics, Universitas Diponegoro to the winners	
19.35-19.40	Performance: MOI band	
19.40-19.45	Announcement of Best Paper Award Ceremonial gift, from the Dean of Faculty of Science and Mathematics Universitas Diponegoro to the winner	
19.45-19.50	Closing	
19.50-20.00	Photo session	
20.00-21.00	Performance: MOI band Gala Dinner Free Session	

KEYNOTE SPEAKER 1**The Future of Data Science Depends on Providing for Data Preservation Now****Denise de Vries**College of Science and Engineering
Flinders University, Australia**Abstract**

The foundation upon which data science depends is, of course, digital data. Research produces it, analyses it, merges it in every type of format, to further knowledge and new products.

Unfortunately, the petabytes of data we produce on a daily basis do not remain accessible for very long. The development of new hardware and software renders previous versions obsolete within a few years, and results in valuable data sets, databases, images, videos, audio files and web sites unfindable and inaccessible. The sad fact is that while we can still read or view artefacts that were created hundreds of years ago, we cannot do the same with those created 10 to 20 years ago.

It is of utmost importance that as we create new digital assets, we also ensure that these will be available in the future by future-proofing them.

Profile

Dr. Denise de Vries has, since the early 1980s, developed commercial complex database systems for a variety of industry domains including local government, airline, public libraries, para-medical, diet and nutrition, commercial cleaning, automotive parts manufacturing, building and construction, inventory control, conference organization and commercial photography. Based on this industry experience she researches techniques to preserve digital history and data semantics including techniques to deal with changes to information in a database such as structural change, semantic change and constraint change.

KEYNOTE SPEAKER 2**Visual Cognitive Sharing and Cognitive Support for Human-Robot Cooperation****Kosuke Sekiyama**

Department of Micro-Nano Mechanical Science and Engineering,
Nagoya University, Japan

Abstract

As the autonomy of robot has significantly improved, the robots have become taking a more practical role in daily situations. Where, multiple robots are expected to work together in unstructured environment. The robots may conduct a mission autonomously or they can support a teleportation from an operator for difficult tasks.

When multi-robot works together, they are often expected to observe the same objects of interest. Conventional work assumes a unique salient feature is available on the object, or employs the artificial markers or tags to identify and share the object among the robots. However, in more practical situations, we do not want to rely on the artificial setting. Multiple robots will generally observe from a different viewpoint, the appearance of the object may change, and the common feature may to be used for cognitive sharing, which is an inherent problem in multi-robot systems.

In this talk, we will discuss the issue of multi-robot cognitive sharing and illustrate an effective method. Also, a mobile robot can choose an appropriate viewpoint to provide effective visual scene for remote control mission as well as taking a better-looking photograph by the autonomous robot. Some of the recent techniques will be presented.

Profile

He received the B.E. degree in 1992, the M.E. degree in 1994 and Dr. Eng. in 1997 from Nagoya University, Japan. From 1998 to 2001, he was a lecturer at the Science University of Tokyo and, he was an associate professor at University of Fukui from 2001 to 2006. Since 2006, he has been an associate professor at Department of Micro-Nano Systems Engineering, Nagoya University. He has involved in cellular robotic system, self-organizing systems, swarm and multi-robot systems, distributed cognitive systems, multi-locomotion robot, evolutionary graph networks, ad-hoc sensor networks, human interface, DNA computing. He is a member of Robotic Society of Japan (RSJ), Japan Society of Mechanical Engineering (JSME) and Society of Instrument and Control Engineers (SICE).



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