

Advanced Program

# IWBIS 2018

2018 International Workshop on Big Data and  
Information Security

May 12-13, 2018  
Jakarta, Indonesia



KANTOR  
PENGELOLAAN  
PRODUK  
RISET & INOVASI



FACULTY OF  
COMPUTER  
SCIENCE

 **IEEE**  
INDONESIA SECTION



**CONFERENCE INFORMATION**

<b>Dates</b>	<b>May 12<sup>th</sup> (Saturday) – May 13<sup>th</sup> (Sunday) 2018</b>
<b>Organizer</b>	Faculty of Computer Science, Universitas Indonesia
<b>Venue</b>	<b>Gedung Balai Kartini – Jakarta</b> Jalan Jenderal Gatot Subroto Kav. 37 Kuningan Timur. Kecamatan Setiabudi, Kota Jakarta Selatan, Daerah Khusus Ibukota Jakarta, Indonesia Phone: (+62 21) 5213653
<b>Official Language</b>	English
<b>Secretariat</b>	Faculty of Computer Science, Universitas Indonesia Kampus UI Depok Depok, 16424 Indonesia T: +62 21786 3419 (ext. 3225) F: +62 21 786 3415 E: iwbis@cs.ui.ac.id W: <a href="http://www.cs.ui.ac.id">http://www.cs.ui.ac.id</a>
<b>Conference Website</b>	<a href="http://iwbis.cs.ui.ac.id">http://iwbis.cs.ui.ac.id</a>

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**Local Organizing Committee**

D. M. S. Arsa, Universitas Indonesia, ID  
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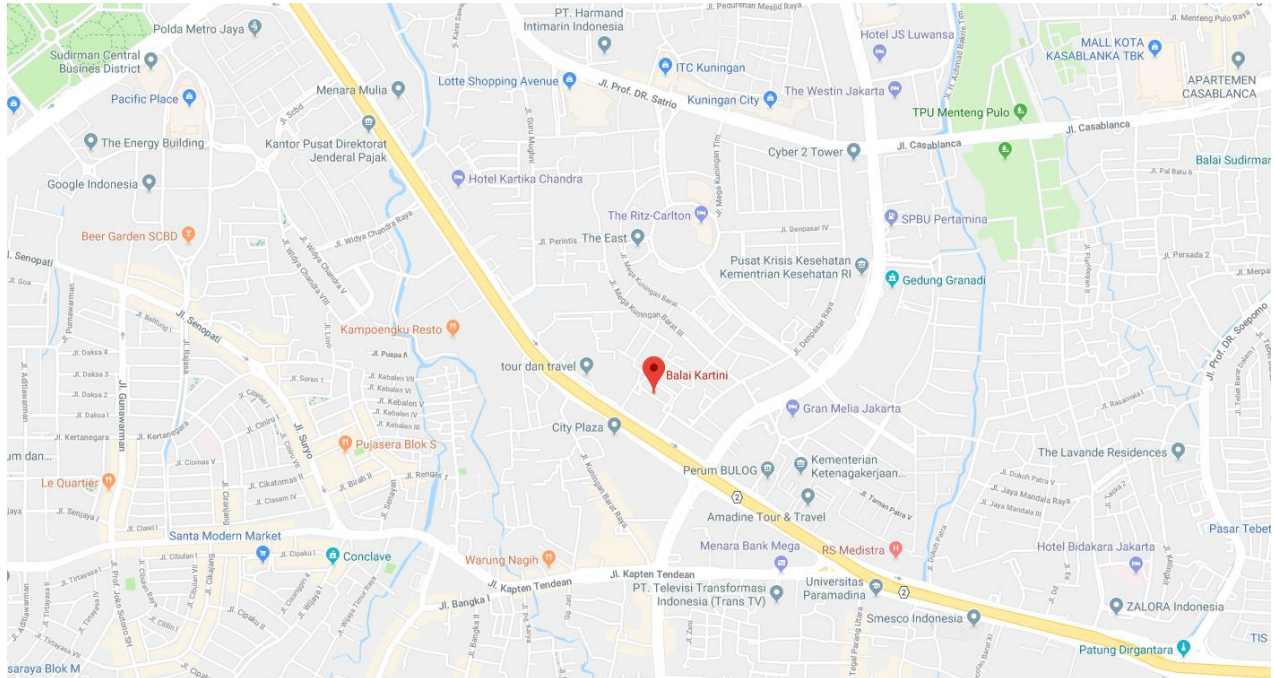
## Balai Kartini, Jakarta

Jalan Jenderal Gatot Subroto Kav. 37 Kuningan Timur.

Kecamatan Setiabudi, Kota Jakarta Selatan.

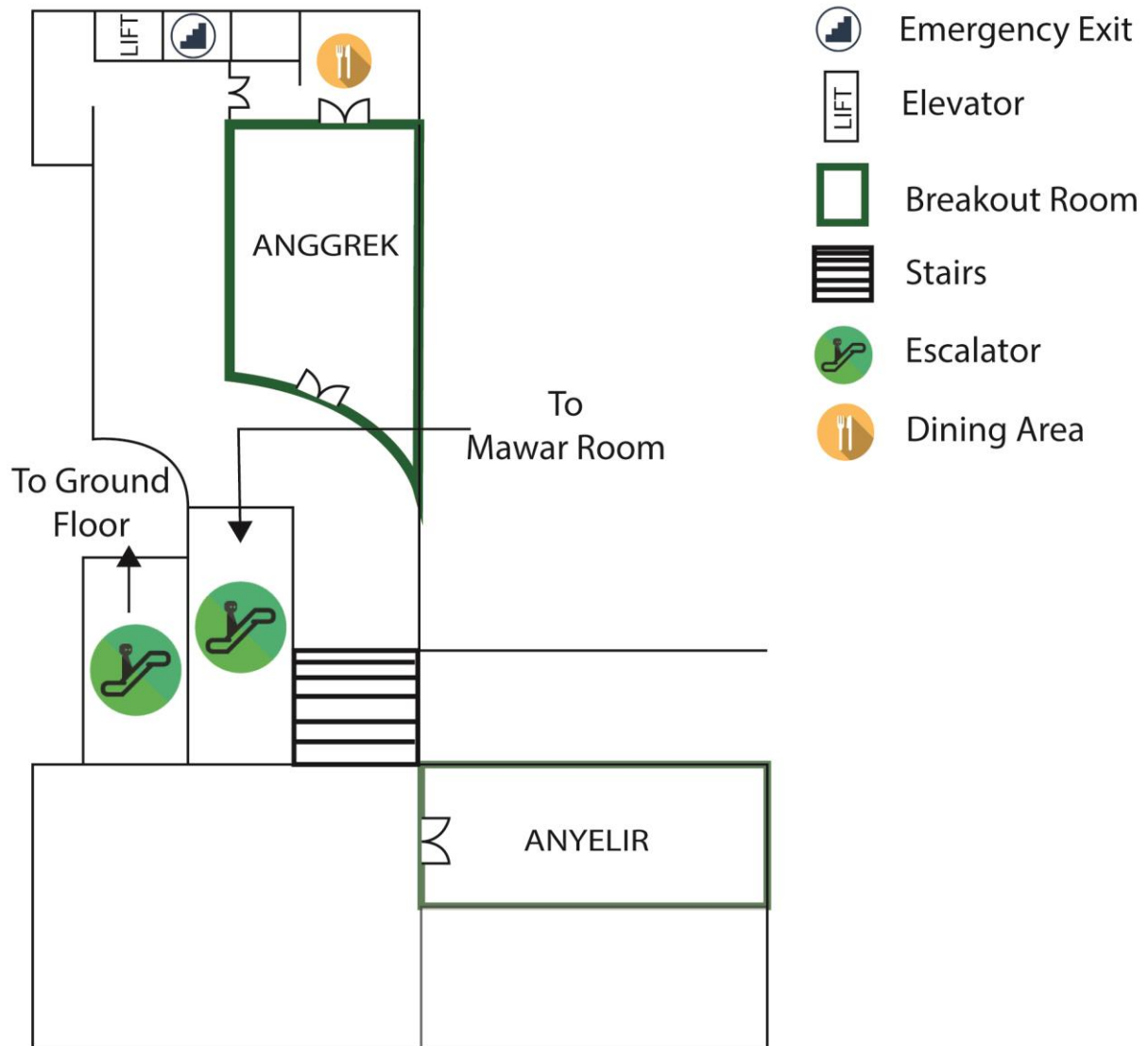
Daerah Khusus Ibukota Jakarta

Indonesia

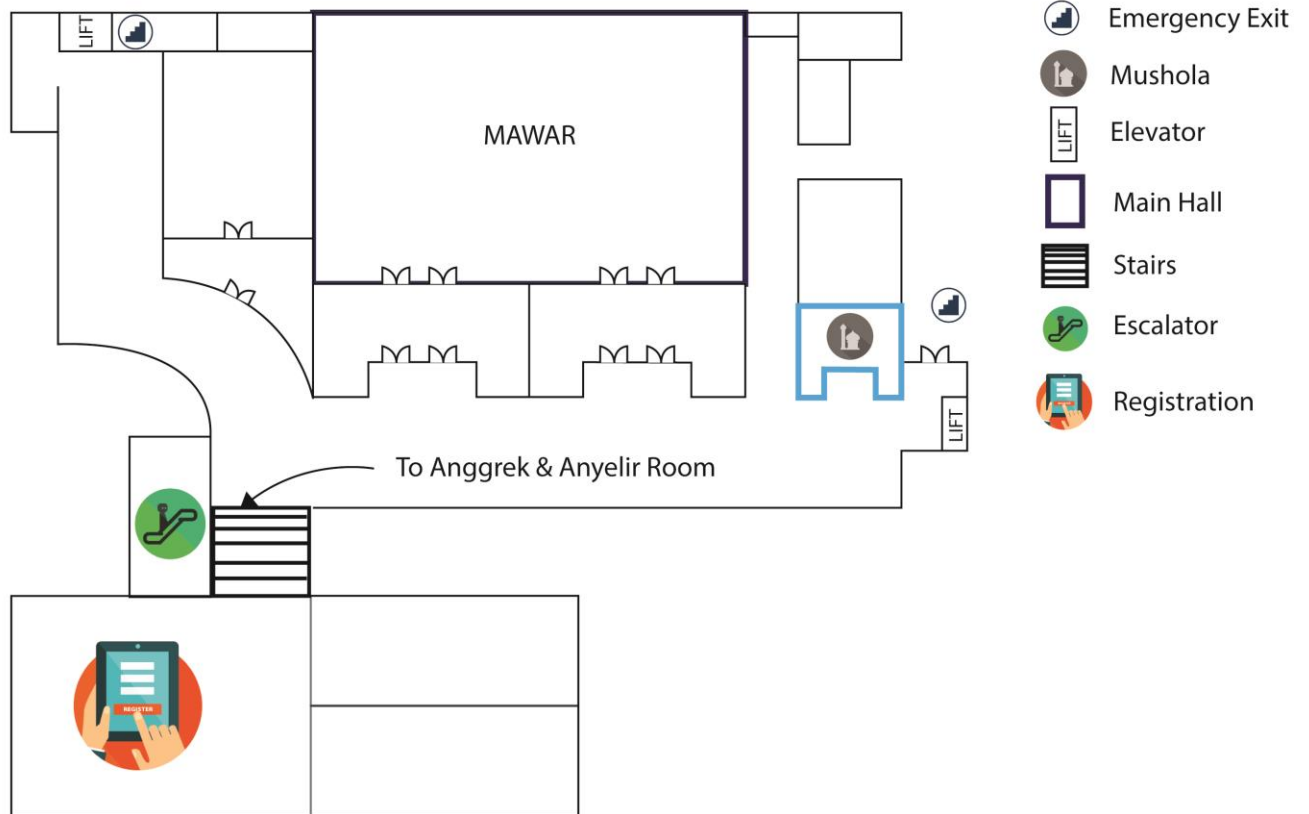


## Venue Map

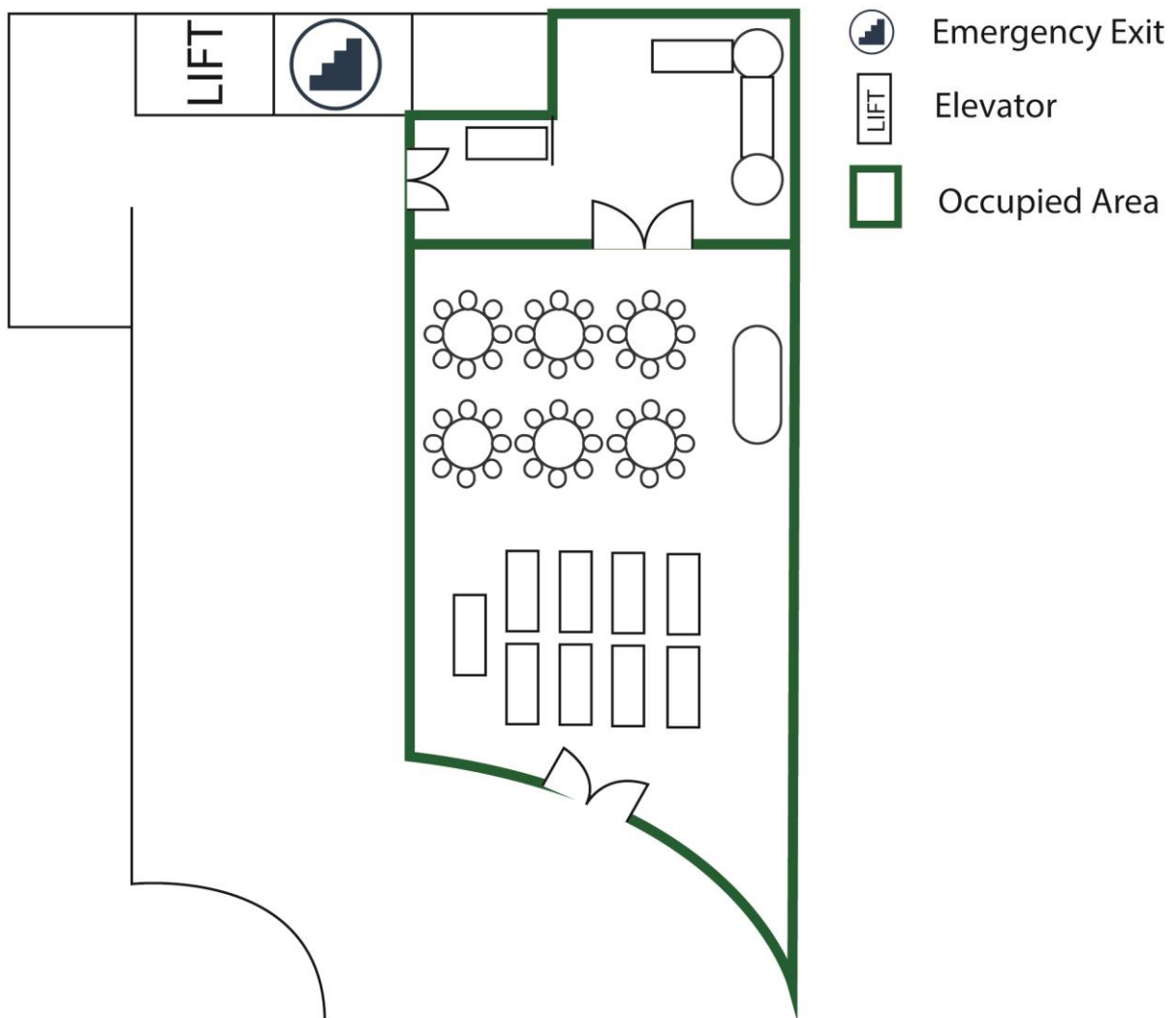
### 1st Floor

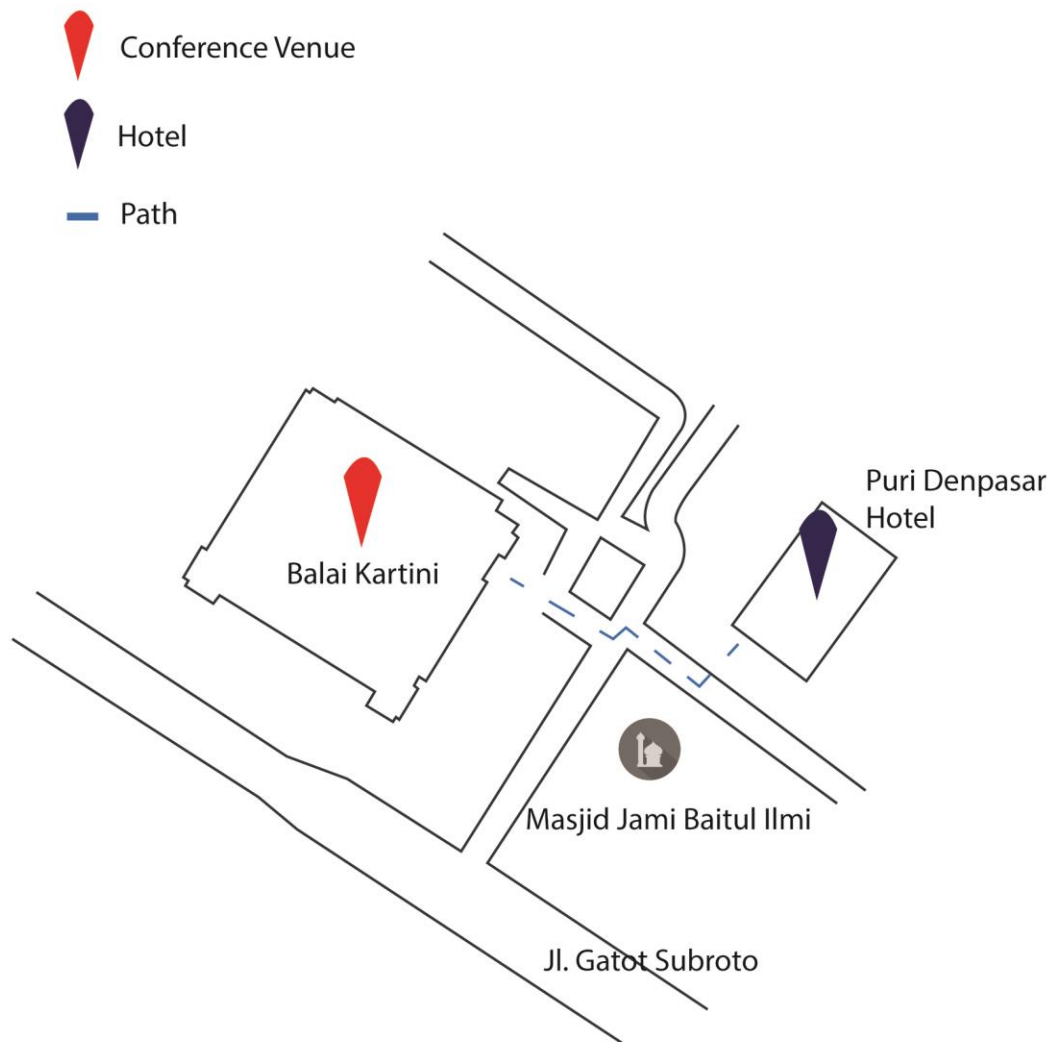


## 2nd Floor



# 1st Floor ANGGREK | Gala Dinner





## REGISTRATION

### Registration Fee

Accepted Paper	USD 300 (International) IDR 3.000.000 (Domestic)
Additional Page	USD 10 (IDR 120.000) (per page)
Participant	USD 150 (International) IDR 700.000 (Domestic)

### Payment Method

All payment for the administration fee and additional events should be transferred to the bank account below:

Recipient Bank	:BNI
Account Name	:UNIVERSITAS-INDONESIA-Fasilkom Non BP
Account Number	:127 3000 444
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## PROGRAM SCHEDULE

*Day 1: Saturday, May 12th, 2018*

		<b>Mawar Room (Main Hall)</b>	<b>Anggrek Room (Breakout Room I)</b>	<b>Anyelir Room (Breakout Room II)</b>
8:00	9:00	Registration and Lite breakfast		
9:00	10:00	Opening Ceremony and Government speech		
10:00	10:45	Keynote Speech I: Prof. Stéphane Bressan		
10:45	10:55	<b>Break</b>		
11:00	12:00		Parallel Session I	Focus Group Discussion
12:05	13:30	<b>Lunch</b>		
13:30	14:30		Parallel Session II	Focus Group Discussion
14:30	14:45	<b>Break</b>		
14:45	16:45		Parallel Session III & IV	Focus Group Discussion
16:45	17:00	Day 1 Closing Event		
19:00	22:00		Gala Dinner	

*Day 2: Sunday, May 13th, 2018*

		<b>Mawar Room (Main Hall)</b>	<b>Anggrek Room (Breakout Room I)</b>	<b>Anyelir Room (Breakout Room II)</b>
8:00	9:00	Registration + Lite breakfast		
9:00	10:20		Parallel Session V	Parallel Session VI
10:20	10:35	<b>Break</b>		
10:35	11:40		Parallel Session VII	Parallel Session VIII
11:40	14:20	<b>Lunch &amp; Break</b>		
14:20	15:10	Keynote Speech II: Prof. Juliana Sutanto		
15:10	15:40	<b>Break</b>		
15:40	16:30	Keynote Speech III: Dr. M. Ivan Fanany		
16:30	16:45	Closing ceremony		

**KEYNOTE SPEAKER**

- Prof. Stéphane Bressan, National University of Singapore, SG
- Prof. Juliana Sutanto, Lancaster University, UK
- Dr. Muhammad Ivan Fanany, Universitas Indonesia, ID

## **“Keynote Speaker”**

### **Who is Alice? Privacy Risk, the Case of Regression**

**Stéphane Bressan**

Associate Professor in the Department of Computer Science of the School of Computing(SoC) of the National University of Singapore (NUS), Singapore

#### **Abstract**

While there seems to be no turning back from data becoming a commodity alongside other traditional economic goods and services, news headlines and scandals recurrently exacerbate the general concern for privacy. Can Alice's data be collected, analysed and the results meaningfully published and shared without compromising Alice's privacy? How can organizations assess the privacy risk before disclosing data or the results of their analysis of data? We discuss two streams of research that study the assessment of privacy risk: statistical disclosure and differential privacy. We critically discuss their similarities and dissimilarities. We comparatively and empirically evaluate the two approaches with various datasets and scenarios using the typical case of linear regression.

#### **Profile**



Stéphane Bressan is Associate Professor in the Department of Computer Science of the School of Computing(SoC) of the National University of Singapore (NUS). Stéphane is Track leader for Maritime Information Technologies at NUS Centre for Maritime Studies (CMS). He is Affiliate Professor at NUS Business Analytics Centre. He is researcher at Image & Pervasive Access Lab (IPAL) (Singapore-France CNRS UMI 29255).

Prof. Bressan's research interest is the integration, management and analysis of data from heterogeneous, disparate and distributed sources. He is the author of more than 100 articles in international peer reviewed conferences and journals. He is member of the steering committee of the Database Systems for Advanced Applications conference series (DASFAA) and founding and steering committee member of the International Organization for Information Integration and Web-based Applications & Services (@WAS). He serves on the committees of numerous international peer reviewed conferences and journals. Stéphane graduated in 1987 with a degree in Computer Science, Electronics and Process

Automation from the Ecole Universitaire D'Ingénieurs de Lille (France) (now Polytech Lille ) and received his Master and his Ph.D. in Computer Science in 1988 and 1992, respectively, from the Laboratoire D'informatique Fondamentale of the University of Lille (France). In 1990, Stéphane joined the European Computer-industry Research Centre (ECRC) of Bull, ICL, and Siemens in Munich (Germany). In 1994, he was appointed site Leader of the Database Platform project and Principal Investigator and Work-package Manager for the European IDEA ESPRIT project on Intelligent Databases. From 1996 to 1998, he was Research Associate at the Sloan School of Management of the Massachusetts Institute of Technology (MIT-USA).

## **“Keynote Speaker”**

### **Smart Park**

#### **Juliana Sutanto**

Full Professor at Lancaster University, United Kingdom

#### **Abstract**

Smart Park is a national or urban park whose operations are enhanced by effective use of the Internet of Things (IoT) for the benefit of its stakeholders. IoT in essence comprises an information exchange ecosystem of people-to-things and things-to-things networks. The complexity of the IoT marketplace, and the rapidly growing number of products and solutions pose considerable challenges to the Smart Park's vision. To maximize the benefits of IoT for national and urban parks, a joined-up fully integrated approach is urgently required. This presentation will discuss about the Smart Park's intelligence layer and development roadmap.

#### **Profile**



Juliana Sutanto is a Full Professor in Information Systems, Co-Director of Connected Communities Research Lab, and Director of MSc. in E-Business and Innovation at the Department of Management Science of Lancaster University Management School. Her research focuses on artefact design and behavioural analysis in digital communications and interactions; as such she subscribes herself to the design and behavioural sciences paradigms. She examines how user interactions with IS could lead to organizational and societal benefits.

Juliana is currently researching on connected and resilient communities, focusing on infrastructure and social resilience, disaster management system, and smart national and urban parks. Her research work has been published in leading information systems journals such as MIS Quarterly and Information Systems Research, as well as in leading general management journal such as Management Science. Her smart park report, which was launched early this year, had received extensive media coverage in the UK such as from BBC Radio, SkyNews, and ITV, and abroad. She is currently an Associate Editor in MIS Quarterly.

**“Keynote Speaker”****3D Capsule Networks for Video Analytics****Muhammad Ivan Fanany**

Faculty of Computer Science, Universitas Indonesia, Indonesia

**Abstract**

Capsule Networks is one of the hottest topics in the current deep learning community. Its revolutionary architecture and algorithms based on capsules representation and routing by agreement provide a new and deep insight on how actually the current deep learning that is based on routing by max pooling has been a success but also a big flaw. In this talk, a solid understanding of the architecture, algorithms, and the intuition behind its works will be presented and discussed. Especially on how to deal with video data and benefiting from the capsule networks for video analytics. A showcase on multi-subject action recognition using capsule networks will also be addressed.

**Profile**

Dr. Fanany is a researcher and lecturer at Faculty of Computer Science, Master of Information Technology, and Graduate School of Biomedical Engineering, The University of Indonesia. His research interests are data science and machine learning for a broad range of applications such imaging science and engineering, remote sensing, biomedical, automobile, and robotics. One of his current scientific activity is a reviewer of Elsevier Journal of Computer Methods and Programs in Biomedicine and Springer Neural Computing and Applications. Before joining the faculty, he worked at Future Project

Div. Toyota Motor Corp, Japan, as a member of middleware development and recognition team; NHK Engineering Services Inc., as a researcher of IT21 Millennium Project on Advanced High Resolution and Highly Sensible Presence 3D Content Creation funded by NICT Japan; and a JSPS Fellow and Research Assistant at Imaging Science and Engineering, Graduate School of Information Science and Engineering, Tokyo Institute of Technology (Tokyo Tech). He served as the Chairman of Tokyo Tech's IEEE Student Branch 2002-2003 and the member of IEEE Consumers Electronics and IEEE Geoscience and Remote Sensing Societies. Since January 2015, he is elevated to a Senior Member of IEEE.

## **TECHNICAL PROGRAM IWBIS 2018**

<b>Opening Ceremony</b> Venue: Main Hall (Mawar Room) <ul style="list-style-type: none"> <li>- Welcoming remarks by IWBIS 2018 General Chair</li> <li>- Remarks by Dean of Faculty of Computer Science, UI</li> <li>- Remarks by UI Rector</li> <li>- Remarks by representative of Badan Ekonomi Kreatif (Bekraf) Indonesia</li> </ul>	<b>Saturday, May 12</b> <b>09:00-10:00</b>
<b>Keynote Speech I</b> Venue: Main Hall (Mawar Room) Keynote speech by Prof. Stéphane Bressan	<b>Saturday, May 12</b> <b>10:00-10:45</b>
<b>Parallel Session I</b> Big Data Venue: Breakout Room I (Anggrek Room) Session Chair: Setiadi Yazid	<b>Saturday, May 12</b> <b>11:00-12:00</b>
<b>(841) Cross-Project Defect Prediction For Web Application Using Naive Bayes (Case Study: Petstore Web Application)</b> Puja Ahmad Habibi, Victor Amrizal, Rizal Broer Bahaweres	
<b>(843) Hierarchical Spatial Pyramid Pooling for Fine-Grained Vehicle Classification</b> Reza Fuad Rachmadi, Keiichi Uchimura, Gou Koutaki, Kohichi Ogata	
<b>(847) Decision Tree Ensemble vs. N.N. Deep Learning: Efficiency Comparison for a Small Image Dataset</b> Jérôme Treboux, Dominique Genoud, Rolf Ingold	
<b>Focus Group Discussion : Privacy issues in the era of Big Data (Private)</b> Venue: Breakout Room II (Anyelir Room) Topic: Privacy issues in the era of Big Data	<b>Saturday, May 12</b> <b>11:00-16:45</b>
<b>Parallel Session II</b> Big Data Venue: Breakout Room I (Anggrek Room) Session Chair: Bayu Anggorojati	<b>Saturday, May 12</b> <b>13:30-14:30</b>
<b>(848) Descriptive and Predictive Analysis of Mail Order Pharmacy</b> Hafid Yoza Putra, Masayu Leylia Khodra	
<b>(851) The Dynamic of Banking Network Topology Case Study: Indonesian Presidential Election Event</b> Andry Alamsyah, Dian Puteri Ramadhani	
<b>(857) Inside Mocha Usan Blog: An Exploratory Data Analysis of a Pro-Duterte Propagandist Facebook Page</b> Xavier Javines Bilon	

**Parallel Session III**

Big Data

Venue: Breakout Room I (Anggrek Room)

Session Chair: Fariz Darari

Saturday, May 12

14:45-15:45

**(859) Improving wind power prediction with retraining machine learning algorithms**

Mariam Barque, Simon Martin, Jérémie Etienne Norbert Vianin, Dominique Genoud,  
David Wannier

**(881) Performance Comparison of Bitcoin Prediction in Big Data Environment (Spark Architecture and GPU Environment)**

Sumarsih C. Purbarani, Wisnu Jatmiko

**(866) Performance Comparison of Rank Aggregation Using Borda and Copeland in Recommender System**

Sri Lestari, Teguh Bharata Adji, Adhistya Erna Permanasari

**Parallel Session IV**

Big Data

Venue: Breakout Room I (Anggrek Room)

Session Chair: Fariz Darari

Saturday, May 12

15:45-16:45

**(872) Visualization of Indonesian Bibliography A Scientometrics Approach**

Harry T. Yani Achsan, Wahyu Catur Wibowo, Wahyuningdiah T. H. Putri, M. Muhtar  
Baswara Achsan

**(882) New Polynomial Based Bit-Level Serial GF(2<sup>m</sup>) Multiplier for Reed Solomon Codec Optimization**

Petrus Mursanto, R. Dimas Nugroho

**(880) Ensemble Learning on Large Scale Financial Imbalanced Data**

Hadaq Rolis Sanabila, Wisnu Jatmiko

**Parallel Session V**

General Papers

Venue: Breakout Room I (Anggrek Room)

Session Chair: Adila Krisnadhi

Sunday, May 13

09:00-10:20

**(836) Profit Prediction using Regression Model for Travel Agents**

Rahmatika Pratama Santi, Masayu Leylia Khodra

**(864) Ensemble Support Vector Machine and Neural Network Method for Speech Stress Recognition**

Barlian Henryranu Prasetyo, Hiroki Tamura, Koichi Tanno

**(865) Support Vector Slant Binary Tree Architecture for Facial Stress Recognition Based on Gabor and HOG Feature**

Barlian Henryranu Prasetyo, Hiroki Tamura, Koichi Tanno

**(878) Predicting Bank Financial Failures using Random Forest**

Zuherman Rustam, Glori Stephani Saragih

**Parallel Session VI**

Information Security

Venue: Breakout Room II (Anyelir Room)

Session Chair: Bayu Anggorojati

**Sunday, May 13****09:00-10:20****(837) Securing Confidential Documents in Local Network Using an Email Filtering Technique**

Patrice Samuel Rompas, Riza Satria Perdana

**(855) Image Preparation for Steganography Capacity Estimation for Specific Image Genre**

Andika Candra Jaya, Setiadi Yazid

**(856) On Developing Information Security Management System (ISMS) Framework for ISO 27001-based Data Center**

Dedy Achmadi, Yohan Suryanto, Kalamullah Ramli

**(863) Practical Implementation of Information Security Management in the Energy Sector Insights from an Oil and Gas Organization in Indonesia**

Hadi Prabowo, Muhammad Rifki Shihab, Rizal Fathony Aji

**Parallel Session VII**

Big Data

Venue: Breakout Room I (Angrek Room)

Session Chair: Betty Purwandari

**Sunday, May 13****10:35-11:40****(862) Comparing Index Structures for Completeness Reasoning**

Fariz Darari, Werner Nutt, Simon Razniewski

**(879) Browsing Behaviour Analysis from Wi-Fi Logs Based on Community Detection: Case Study on Universitas Indonesia's Wi-Fi Logs Data**

Mei Silviana Saputri, Ari Wibisono, Adila Krisnadhi, Adhi Yuniarto Laurentius Yohanes, Teuku Amrullah Faisal, Alvin Wardhana Utama, Muhammad Azmi Malik Ariefa, Andre Ramadhani, Aminur Muda

**(884) Time Performance Analysis of Multi-CPU and Multi-GPU in Big Data Clustering Computation**

Widiarto Adiyoso, Adila Krisnadhi, Ari Wibisono, Sumarsih Condroayu Purbarani, Anindhita Dwi Saraswati, Annissa Fildzah Rafi Putri, Ibad Rahadian Saladdin, S. Reyneta Carissa Anwar

**Parallel Session VIII**

General Papers

Venue: Breakout Room II (Anyelir Room)

Session Chair: R. Yugo Kartono Isal

**Sunday, May 13****10:35-11:40****(888) Level 2 Features with Feedback Mechanism for Toddler Fingerprint Recognition**

I Gede Wahyu Surya Dharma, Muhammad Anwar Ma'sum, Muhammad Hafizhuddin Hilman, Wisnu Jatmiko

**(889) Improving Principal Component Analysis Performance for Reducing Spectral Dimension in Hyperspectral Image Classification**

Dewa Made Sri Arsa, Hadaq Rolis Sanabila, Muhammad Febrian Rachmadi, Ahmad Gamal, Wisnu Jatmiko

**(890) Muticodebook Neural Network using Intelligent K-Means Clustering based on Histogram Information For Multimodal Data Classification**

Muhammad Anwar Ma'sum, Dewa Made Sri Arsa, Indra Hermawan, Adi Nurhadiyatna, Wisnu Jatmiko

**Keynote Speech II**

Venue: Main Hall (Mawar Room)

**Sunday, May 13**

**14:20-15:10**

Keynote speech by Prof. Juliana Sutanto

**Keynote Speech III**

Venue: Main Hall (Mawar Room)

**Sunday, May 13**

**15:40-16:30**

Keynote speech by Dr. Muhammad Ivan Fanany

**Closing Ceremony**

Venue: Main Hall (Mawar Room)

**Sunday, May 13**

**16:30 – 17:00**

- Remarks on behalf of IEEE Indonesia Section
- Remarks by IWBIS 2018 General Chair

## PRESENTER'S SCHEDULE

### A

Andika Candra Jaya			
Image Preparation for Steganography Capacity Estimation for Specific Image Genre			
Breakout Room II (Anyelir Room)	Parallel Session VI 09:20 – 09:40	Sunday, May 13	Presenter 1

### D

Dedy Achmadi			
On Developing Information Security Management System (ISMS) Framework for ISO 27001-based Data Center			
Breakout Room II (Anyelir Room)	Parallel Session VI 09:40 – 10:00	Sunday, May 13	Presenter 1

Dewa Made Sri Arsa			
Improving Principal Component Analysis Performance for Reducing Spectral Dimension in Hyperspectral Image Classification			
Breakout Room II (Anyelir Room)	Parallel Session VIII 10:50 – 11:05	Sunday, May 13	Presenter 1

Dian Puteri Ramadhani			
The Dynamic of Banking Network Topology Case Study: Indonesian Presidential Election Event			
Breakout Room I (Anggrek Room)	Parallel Session II 13:50 – 14:10	Saturday, May 12	Presenter 2

### F

Fariz Darari			
Comparing Index Structures for Completeness Reasoning			
Breakout Room I (Anggrek Room)	Parallel Session VII 10:35 – 10:55	Sunday, May 13	Presenter 1

## G

Glori Stephani Saragih			
Predicting Bank Financial Failures using Random Forest			
Breakout Room I (Anggrek Room)	Parallel Session V 10:00 – 10:20	Sunday, May 13	Presenter 2

## H

Hadaq Rolis Sanabila			
Ensemble Learning on Large Scale Financial Imbalanced Data			
Breakout Room I (Anggrek Room)	Parallel Session IV 16:25 – 16:45	Saturday, May 12	Presenter 1

Hafid Yoza Putra			
Descriptive and Predictive Analysis of Mail Order Pharmacy			
Breakout Room I (Anggrek Room)	Parallel Session II 13:30 – 13:50	Saturday, May 12	Presenter 1

Harry T. Yani Achsan			
Visualization of Indonesian Bibliography A Scientometrics Approach			
Breakout Room I (Anggrek Room)	Parallel Session IV 15:45 – 16:05	Saturday, May 12	Presenter 1

Hiroki Tamura			
Ensemble Support Vector Machine and Neural Network Method for Speech Stress Recognition			
Breakout Room I (Anggrek Room)	Parallel Session V 09:20 – 09:40	Sunday, May 13	Presenter 2
Support Vector Slant Binary Tree Architecture for Facial Stress Recognition Based on Gabor and HOG Feature			
Breakout Room I (Anggrek Room)	Parallel Session V 09:40 – 10:00	Sunday, May 13	Presenter 2

I

I Gede Wahyu Surya Dharma			
Level 2 Features with Feedback Mechanism for Toddler Fingerprint Recognition			
Breakout Room II (Anyelir Room)	Parallel Session VIII 10:35 – 10:50	Sunday, May 13	Presenter 1

J

Jérôme Treboux			
Decision Tree Ensemble vs. N.N. Deep Learning: Efficiency Comparison for a Small Image Dataset			
Breakout Room I (Angrek Room)	Parallel Session I 11:40 – 12:00	Saturday, May 12	Presenter 1

M

Mariam Barque			
Improving Wind Power Prediction with Retraining Machine Learning Algorithms			
Breakout Room I (Angrek Room)	Parallel Session III 14:45 – 15:05	Saturday, May 12	Presenter 1

Mei Silviana Saputri			
Browsing Behaviour Analysis from Wi-Fi Logs Based on Community Detection: Case Study on Universitas Indonesia's Wi-Fi Logs Data			
Breakout Room I (Angrek Room)	Parallel Session VII 10:55 – 11:05	Sunday, May 13	Presenter 1

Muhammad Anwar Ma'sum			
Muticodebook Neural Network using Intelligent K-Means Clustering based on Histogram Information For Multimodal Data Classification			
Breakout Room II (Anyelir Room)	Parallel Session VIII 11:05 – 11:20	Sunday, May 13	Presenter 1

Muhammad Rifki Shihab			
Practical Implementation of Information Security Management in the Energy Sector Insights from an Oil and Gas Organization in Indonesia			
Breakout Room II (Anyelir Room)	Parallel Session VI 10:00 – 10:20	Sunday, May 13	Presenter 2

## P

Patrice Samuel Rompas			
Securing Confidential Documents in Local Network Using an Email Filtering Technique			
Breakout Room II (Anyelir Room)	Parallel Session VI 09:00 – 09:20	Sunday, May 13	Presenter 1

Petrus Mursanto			
New Polynomial Based Bit-Level Serial GF(2 <sup>m</sup> ) Multiplier for Reed Solomon Codec Optimization			
Breakout Room I (Anggrek Room)	Parallel Session IV 16:05 - 16:25	Saturday, May 12	Presenter 1

Puja Ahmad Habibi			
Cross-Project Defect Prediction for Web Application Using Naive Bayes (Case Study: Petstore Web Application)			
Breakout Room I (Anggrek Room)	Parallel Session I 11:00 – 11:20	Saturday, May 12	Presenter 1

## R

Rahmatika Pratama Santi			
Profit Prediction Using Regression Model for Travel Agents			
Breakout Room I (Anggrek Room)	Parallel Session V 09:00 – 09:20	Sunday, May 13	Presenter 1

Reza Fuad Rachmadi			
Hierarchical Spatial Pyramid Pooling for Fine-Grained Vehicle Classification			
Breakout Room I (Anggrek Room)	Parallel Session I 11:20 – 11:40	Saturday, May 12	Presenter 1

## S

Sri Lestari			
Performance Comparison of Rank Aggregation Using Borda and Copeland in Recommender System			
Breakout Room I (Anggrek Room)	Parallel Session III 15:25 – 15:45	Saturday, May 12	Presenter 1

Sumarsih Condroayu Purbarani			
Performance Comparison of Bitcoin Prediction in Big Data Environment (Spark Architecture and GPU Environment)			
Breakout Room I (Anggrek Room)	Parallel Session III 15:05 – 15:25	Saturday, May 12	Presenter 1

## W

Widiarto Adiyoso			
Time Performance Analysis of Multi-CPU and Multi-GPU in Big Data Clustering Computation			
Breakout Room I (Anggrek Room)	Parallel Session VII 11:15 – 11:35	Sunday, May 13	Presenter 1

## X

Xavier Javines Bilon			
Inside Mocha Uson Blog: An Exploratory Data Analysis of a Pro-Duterte Propagandist Facebook Page			
Breakout Room I (Anggrek Room)	Parallel Session II 14:10 – 14:30	Saturday, May 12	Presenter 1

