CONFERENCE ABSTRACT

2019 International Conference on Intelligent Medicine and Image Processing (IMIP 2019)

April 19-22, 2019

Bali, Indonesia

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Introduction

Welcome to 2019 International Conference on Intelligent Medicine and Image Processing (IMIP 2019) which is sponsored by Hong Kong Chemical, Biological & Environmental Engineering Society (CBEES) and Biology and Bioinformatics (BBS), and is supported by Udayana University, Indonesia. The objective of 2019 International Conference on Intelligent Medicine and Image Processing (IMIP 2019) is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Intelligent Medicine and Image Processing.

Papers will be published in the following proceeding or journal:

ACM Conference Proceedings (ISBN: 978-1-4503-6269-6), which will be achived in ACM Digital Library, indexed by Ei Compendex and Scopus, and submitted to be reviewed by Thomson Reuters Conference Proceedings Citation Index (ISI Web of Science).

Journal of Image and Graphics (JOIG, ISSN: 2301-3699), which will be included in Ulrich's Periodicals Directory, Google Scholar, Crossref, Engineering & Technology Digital Library and Electronic Journals Digital Library.

Conference website and email: http://www.imip.org/ ; imip@cbees.net

Presentation Instruction

Instruction for Oral Presentation

Devices Provided by the Conference Organizer:

Laptop Computer (MS Windows Operating System with MS PowerPoint and Adobe Acrobat Reader)
Digital Projectors and Screen
Laser Stick

Materials Provided by the Presenters:

PowerPoint or PDF Files (Files should be copied to the Conference laptop at the beginning of each Session.)

Duration of each Presentation (Tentatively):

Keynote Speech: about **40** Minutes of Presentation and **5** Minutes of Question and Answer
Keynote Speech: about **40** Minutes of Presentation and **5** Minutes of Question and Answer
Invited Speech: about **15** Minutes of Presentation and **5** Minutes of Question and Answer
Oral Presentation: about **12** Minutes of Presentation and **3** Minutes of Question and Answer

Instruction for Poster Presentation

Materials Provided by the Conference Organizer:

The place to put poster

Materials Provided by the Presenters:

Home-Made Posters: Submit the poster to the staff when signing in
Poster Size: A1 (841*594mm)
Load Capacity: Holds up to 0.5 kg

Best Presentation Award

One Best Oral Presentation and one Best Poster Presentation will be selected from each session, and the Certificate for Best Presentation will be awarded at the end of each session on April 20 and 21, 2019.

Dress Code

Please wear formal clothes or national representative of clothing.

Honored Speaker Introduction

Keynote Speaker I

Prof. Kiyoshi Hoshino
University of Tsukuba, Japan

Prof. Kiyoshi Hoshino received two doctor's degrees; one in Medical Science in 1993, and the other in Engineering in 1996, from the University of Tokyo respectively. From 1993 to 1995, he was an assistant professor at Tokyo Medical and Dental University School of Medicine. From 1995 to 2002, he was an associate professor at University of the Ryukyus. From 2002, he was an associate professor at the Biological Cybernetics Lab of University of Tsukuba. He is now a professor. From 1998 to 2001, he was jointly appointed as a senior researcher of the PRESTO "Information and Human Activity" project of the Japan Science and Technology Agency (JST). From 2002 to 2005, he was a project leader of a SORST project of JST. He served as a member of the “cultivation of human resources in the information science field” WG, Special Coordination Funds for the Promotion of Science and Technology, MEXT, a member of “Committee for Comport 3D Fundamental Technology Promotion”, JEITA, and the General Conference Chair of the 43rd Annual Meeting of Japanese Society of Biofeedback Research, ICBBE2018, and DMIP2018. He received Laval Virtual Awards in 2009, 2013, and 2014.

Topic: "Measurement of Eye Movement Using a Small Camera Installed Roughly next to the Human Eye"

***Abstract*—**An innovative method will be introduced in this talk, which enables the user to measure both eye-tracking and eye rotation using a small camera installed roughly next to the eye (not to obstruct user’s view) by a single imaging technique. Even at night or in such a bright environment of light that the evening sun streams into horizontally, our proposed system works robustly and stably. Our technique is capable of enabling the advanced function to be achieved as described above, which is not found in any other systems in the whole world.

Keynote Speaker II

Prof. Hiroshi Fujita
Gifu University, Japan

Prof. Hiroshi Fujita received the B.S. and M.S. degrees in electrical engineering from Gifu University, Japan, in 1976 and 1978, respectively, and Ph.D. degree from Nagoya University in 1983. He became a research associate in 1978 and an associate professor in 1986 at Gifu National College of Technology. He was a visiting researcher at the K. Rossmann Radiologic Image Laboratory, University of Chicago, in 1983-1986. He became an associate professor in 1991 and a professor in 1995 in the Faculty of Engineering, Gifu University. He has been a professor and chair of intelligent image information since 2002 at the Graduate School of Medicine, Gifu University. He is now a Research Professor of Gifu University. He is a member of the Society for Medical Image Information (Honorary President), the Institute of Electronics, Information and Communication Engineers (Fellow), its Technical Groups on Medical Image (Adviser), the Japan Society for Medical Image Engineering (Director), and some other societies such as SPIE. He has been also served as scientific committee or program committee members, such as in International Workshop on Digital Mammography (Breast Imaging), SPIE Medical Imaging, and Computer Assisted Radiology and Surgery (CARS). He was worked as a General co-chair of Asian Forum on Medical Imaging 2007 held in Cheju National University, Korea, and as a General Chair of International Workshop for Breast Imaging (IWDM2014, Gifu). He has also worked as a Guest Editor-in-Chief in Special Section Editorial Committee for Medical Imaging, issued in April, 2013, from IEICE Society in Japan, and also as a Guest Editor-in-Chief in the Special Issue on Advanced Image Technologies in Diagnostic Imaging in 2018 in the Journal of Medical Imaging and Health Informatics. His research interests include computer-aided diagnosis system, image analysis and processing, and image evaluation in medicine. He has published over 1000 papers in Journals, Proceedings, Book chapters and Scientific Magazines.

Topic: "Computer-Aided Diagnosis (CAD) for Medical Images in the New Era of Artificial Intelligence (AI)"

***Abstract*—**Computer-aided detection/diagnosis, so-called CAD, is rapidly entering the radiology mainstream. It has already become a part of the routine clinical work especially for the detection of breast cancer with mammograms, in which the computer output is used as a "second opinion" in assisting radiologists' image interpretations. Recent powerful AI technology such as deep learning advances the development and improving performance of CAD to the next stage, sometimes called as AI-CAD. In this talk, current status and issues to be solved in the AI-CAD will be reviewed.

Keynote Speaker III

Prof. Yen-Wei Chen
Ritsumeikan University, Japan

Prof. Yen-Wei Chen received the B.E. degree in 1985 from Kobe Univ., Kobe, Japan, the M.E. degree in 1987, and the D.E. degree in 1990, both from Osaka Univ., Osaka, Japan. He was a research fellow with the Institute for Laser Technology, Osaka, from 1991 to 1994. From Oct. 1994 to Mar. 2004, he was an associate Professor and a professor with the Department of Electrical and Electronic Engineering, Univ. of the Ryukyus, Okinawa, Japan. He is currently a professor with the college of Information Science and Engineering, Ritsumeikan University, Japan. He is also a visiting professor with the College of Computer Science, Zhejiang University, China. He was a visiting professor with the Oxford University, Oxford, UK in 2003 and a visiting professor with Pennsylvania State University, USA in 2010. His research interests include medical image analysis, computer vision and computational intelligence. He has published more than 300 research papers in a number of leading journals and leading conferences including IEEE Trans. Image Processing, IEEE Trans. SMC, Pattern Recognition. He has received many distinguished awards including ICPR2012 Best Scientific Paper Award, 2014 JAMIT Best Paper Award, Outstanding Chinese Oversea Scholar Fund of Chinese Academy of Science. He is/was a leader of numerous national and industrial research projects.

Topic: "Deep Learning Based Computer-Aided Diagnosis"

***Abstract*—**Recently, deep learning (DL) plays important roles in many academic and industrial areas especially in computer vision and image recognition. Deep learning uses a neural network with deep structure to build a high-level feature space. It learns data-driven, highly representative, hierarchical image features, which have proven to be superior to conventional hand-crafted low-level features and mid-level features. In ILSVRC2015 (an Annual competition of image classification at large scale), higher recognition accuracy by deep learning than human has been achieved. Deep learning (DL) has also been applied to medical image analysis. Compared with DL-based natural image analysis, there are several challenges in DL-based medical image analysis due to their high dimensionality and limited number of labeled training samples. We proposed several deep learning techniques for medical image analysis including medical image segmentation, medical image detection and medical image recognition. In this keynote talk, I will talk about current progress and futures of medical image analysis with deep learning.

Keynote Speaker IV

Prof. Qijun Zhao
Sichuan University, China

Prof. Qijun Zhao is currently a professor in the College of Computer Science at Sichuan University. He obtained his B.Sc. and M.Sc. degrees in computer science both from Shanghai Jiao Tong University, and his Ph.D. degree in computer science from the Hong Kong Polytechnic University. He worked as a post-doc research fellow in the Pattern Recognition and Image Processing Lab at Michigan State University from 2010 to 2012. His recent research interests lie in 3D face modeling and recognition, with applications to forensics, intelligent video surveillance, mobile security, healthcare, and human-computer interactions. Dr. Zhao has published more than 60 papers in academic conferences and journals, including CVPR, ECCV, AAAI, ICB, IEEE Trans., and PR. He is the principal investigator for two projects funded by NSFC, one project funded by the National Key Research and Development Program of China, and many projects funded by companies. Dr. Zhao is a reviewer for many renowned field journals and conferences, such as IEEE TPAMI, IEEE TIFS, IJCV, PR, PRL, ICCV, CVPR, ECCV, and FG. He served as a program committee co-chair in organizing the 11th Chinese Conference on Biometric Recognition (CCBR 2016), the 2018 IEEE International Conference on Identity, Security and Behavior Analysis (ISBA), and the 2018 6th International Conference on Bioinformatics and Computational Biology (ICBCB 2018), and as a face recognition area co-chair for the 9th IEEE International Conference on Biometrics: Theory, Applications, and Systems (BTAS 2018).

Topic: "3D Face Reconstruction in Recognition Perspective"

***Abstract*—**The face reveals a lot of information of humans, for example, identity, race, gender, age, emotion, intention, and health. 3D face models are thus widely studied in many disciplines. Yet, acquisition of 3D faces is still much more expensive and less convenient than acquisition of 2D face images, making it unaffordable to deploy 3D face technology in many real-world applications. Our research aims to reconstruct 3D face shapes from either single or multiple uncalibrated 2D face images from a perspective of identity recognition. This talk will introduce our recent progress along this direction. The methods we propose enable not only efficient generation of 3D face models when only 2D imaging devices are available, but also effective exploration of 3D face information for improving face recognition accuracy. We believe that 3D faces will play increasingly important roles in many applications with the rapid development of both 3D face acquisition techniques and 3D face modeling methods.

Keynote Speaker V

Assoc. Prof. Ken'ichi Morooka
Kyushu University, Japan

Assoc. Prof. Ken'ichi Morooka received his M.S. and Ph.D. degrees from Kyushu University, in 1997 and 2000, respectively. He was a visiting researcher with Institute of Systems & Information Technologies/KYUSHU. From 2000 to 2006, he was an associate professor in Graduate School of Science and Engineering, Tokyo Institute of Technology. He was an associate professor in Digital Medicine Initiative (2006-2010) and Department of Medical Sciences, Kyushu University (2010). Currently, he is an associate professor in Graduate School of Information Science and Electrical Engineering, Kyushu University. Also he was a visiting researcher, Illinois Institute of Technology, U.S. (2016). He has published more than 100 journal and conference articles. He has served as a member of organizing and program committees at numerous conferences, e.g. he has been program committes of MLMI 2018 and 2017, IFMIA 2017, CARS 2014 and EMBC 2013. His research interests cover computer-aided support system for therapy and surgery by image information processing and machine learning.

Topic: "Computer Aided System for Minimally Invasive Surgery Using Deep Learning"

***Abstract*—**Recently, deep neural networks (DNNs) have been paid attention by various research fields including vision, audio and natural language. Of course, there are many DNN-based systems for therapy and diagnosis. Our research group has been doing research about computer-aided support systems for safe and accurate minimally invasive surgeries. Especially, to provide useful information for surgeons, our support systems use stereo endoscopic images, DNNs and 3D shapes and deformations of organs. I will present the fundamental techniques of our support system.

Invited Speaker

Assoc. Prof. Sugiono Sugiono
Brawijaya University, Indonesia

Sugiono, Ph.D was born in Blitar, Indonesia, in 1978. He finished Bachelor degree in Mechanical Engineering Department at Brawijaya University in 2001, received Master Degree in Industrial Engineering at Sepuluh Nopember Institute of Technology, Surabaya in 2004, and graduated Ph.D. degree of Art, Design and Technology from University of Derby, UK, in 2012. Title of his thesis (PhD) is: Investigating an Intelligent Concept Design Tool for Automotive Car Body Design. His research interests lie in bioengineering - ergonomics and intelligent product design. He worked as project analyser in investigating of fuel distribution for industry at PT. Surveyor Indonesia from 2001 to 2002. He also worked as purchasing vice leader at PT. Mitra Saruta (Textile) from 2004 to 2005. Currently, he is working as a lecturer at Department of Industrial Engineering, Brawijaya University start from 2005. He is a head of Work Design and Ergonomics Laboratory and head of Research Committee at Brawijaya University. He is an international reviewer of research, certificated by ISO 17024. He is also working as editor in chief of the Indonesian Journal of Disability Studies (IJDS). He is a senior member of Hong Kong Chemical, Biological and Environmental Engineering Society (HKCBEES), member of Indonesian Ergonomics Society (Perhimpunan Ergonomi Indonesia – PEI) and Member of International Association of Engineers (IAENG).

Topic: "The Importance of Open Innovation Concept to Improve Health and Safety Factors in Transportation"

***Abstract*—**Controlling driver stress level is going to be popular research and put it a very important factor to reduce the risk of a road accident. Understanding the role of road complexity and information technology in transportation issues and their relationship with humans psychophysiological is a good challenge and profitable prospect for the future. Images from the Electrocardiograph (ECG) and Electroencephalography (EEG) are the important tools to identify the driver stress as part of a safety alert system. The Electrocardiograph (ECG) is to monitor every heart rate change and Electroencephalography (EEG) is to record brain signal change correlated with brain functions (thinking, visual, decision, etc.) from three different road types (city road, rural road, and motorway). In this speech, I will deliver a potential open innovation of health and safety factors in transportation (car, train) from the perspective of interaction among human, car, and environment.

Detailed Schedule of Conference

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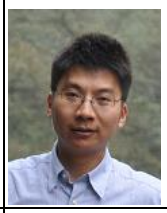
<tr><td>Day 1</td><td colspan="3">April 19, 2019 (Friday)
Venue: Hotel Lobby
Arrival Registration 10:00-16:00</td></tr>
<tr><td rowspan="11">Day 2</td><td colspan="3">April 20, 2019 (Saturday)</td></tr>
<tr><td colspan="3">Morning Conference</td></tr>
<tr><td colspan="3">Venue: The Tabanan Room</td></tr>
<tr><td>09:00-09:05</td><td>  </td><td>Opening Remarks
Prof. Tjokorda Gde Tirta Nindhia
Udayana University, Indonesia</td></tr>
<tr><td>09:05-09:50</td><td>  </td><td>Keynote Speech I
Prof. Kiyoshi Hoshino
University of Tsukuba, Japan
Topic: "Measurement of Eye Movement Using a Small Camera Installed Roughly next to the Human Eye"</td></tr>
<tr><td>09:50-10:20</td><td colspan="2">Coffee Break & Group Photo</td></tr>
<tr><td>10:20-11:05</td><td>  </td><td>Keynote Speech II
Prof. Hiroshi Fujita
Gifu University, Japan
Topic: "Computer-Aided Diagnosis (CAD) for Medical Images in the New Era of Artificial Intelligence (AI)"</td></tr>
<tr><td>11:05-11:50</td><td>  </td><td>Keynote Speech III
Prof. Yen-Wei Chen
Ritsumeikan University, Japan
Topic: "Deep Learning Based Computer-Aided Diagnosis"</td></tr>
<tr><td>11:50-12:10</td><td>  </td><td>Invited Speech
Assoc. Prof. Sugiono Sugiono
Brawijaya University, Indonesia
Topic: "The Importance of Open Innovation Concept to Improve Health and Safety Factors in Transportation"</td></tr>
<tr><td colspan="3">12:10-13:30 Lunch (The Restaurant Coffee Shop)</td></tr>
<tr><td colspan="3">Afternoon Conference</td></tr>
<tr><td colspan="2">Session 1: 13:30-15:30
Venue: The Tabanan Room
Topic: “Big Data Technology and Application”</td><td>Session 2: 13:30-15:30
Venue: The Jembrana Room
Topic: “Computer Science and Information Technology”</td></tr>
</table>

<table>
<tr><td></td><td colspan="3">8 presentations</td><td>8 presentations</td></tr>
<tr><td></td><td colspan="4">15:30-16:00 Coffee Break</td></tr>
<tr><td></td><td colspan="3">Session 3: 16:00-18:00
Venue: The Tabanan Room
Topic: “Image Detection and Pattern Recognition”
8 presentations</td><td>Session 4: 16:00-17:45
Venue: The Jembrana Room
Topic: “Sensing Technology and Intelligent Control System”
7 presentations</td></tr>
<tr><td></td><td colspan="4">18:00-20:00 Dinner (The Restaurant Coffee Shop)</td></tr>
<tr><td rowspan="11">Day 3</td><td colspan="4">April 21, 2019 (Sunday)</td></tr>
<tr><td colspan="4">Morning Conference</td></tr>
<tr><td colspan="4">Venue: The Tabanan Room</td></tr>
<tr><td>09:00-09:05</td><td>  </td><td colspan="2">Opening Remarks
Prof. Tjokorda Gde Tirta Nindhia
Udayana University, Indonesia</td></tr>
<tr><td>09:05-09:50</td><td>  </td><td colspan="2">Keynote Speech IV
Prof. Qijun Zhao
Sichuan University, China
Topic: "3D Face Reconstruction in Recognition Perspective"</td></tr>
<tr><td>09:50-10:20</td><td colspan="3">Coffee Break & Group Photo</td></tr>
<tr><td>10:20-11:05</td><td>  </td><td colspan="2">Keynote Speech V
Assoc. Prof. Ken’ichi Morooka
Kyushu University, Japan
Topic: "Computer Aided System for Minimally Invasive Surgery Using Deep Learning"</td></tr>
<tr><td colspan="4">Session 5: 11:05-12:35
Venue: The Tabanan Room
Topic: “Biomedical Image Processing”
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<tr><td colspan="4">12:35-13:30 Lunch (The Restaurant Coffee Shop)</td></tr>
<tr><td colspan="4">Afternoon Conference</td></tr>
<tr><td colspan="4">Session 6: 13:30-15:00
Venue: The Tabanan Room
Topic: “Data Mining and Data Analysis”
6 presentations</td></tr>
<tr><td colspan="4">Poster Session: 15:00-16:00 (The Tabanan Room)</td></tr>
<tr><td>Day 4</td><td colspan="4">April 22, 2019 (Monday)
9:00-19:00 Academic Visit & Tour</td></tr>
</table>

Tips: Please arrive at the Conference Room 10 minutes before the session begins to upload PPT into the laptop; submit the poster to the staff when signing in.

Session 1

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 20, 2019 (Saturday)
Time: 13:30-15:30
Venue: The Tabanan Room
Topic: "Big Data Technology and Application"
Session Chair: Prof. Kiyoshi Hoshino

B0057 Session 1 Presentation 1 (13:30-13:45)	Methods of Neural Network Analysis of Oilfield Data **Iakov Korovin**, Maxim Khisamutdinov and Donat Ivanov Southern Federal University, Russia *Abstract*—The article proposes methods for neural network analysis of oilfield data, including the neural network method for quickly determining the recommended methods for enhanced oil recovery. A general algorithm for estimating and predicting the parameters of a digital field and a working neural network algorithm are given.
B0068 Session 1 Presentation 2 (13:45-14:00)	Text-Independent Speaker ID for Automatic Video Lecture Classification Using Deep Learning **Ali Shariq Imran**, Zenun Kastrati, Torbjørn Karl Svendsen and Arianit Kurti Norwegian University of Science and Technology (NTNU), Norway *Abstract*—This paper proposes to use acoustic features employing deep neural network (DNN) and convolutional neural network (CNN) models for classifying video lectures in a massive open online course (MOOC). The models exploit the voice pattern of the lecturer for identification and for classifying the video lecture according to the right speaker category. Filter bank and Mel frequency cepstral coefficient (MFCC) feature along with first and second order derivatives (Δ/ΔΔ) are used as input features to the proposed models. These features are extracted from the speech signal which is obtained from the video lectures by separating the audio from the video using FFmpeg. The deep learning models are evaluated using precision, recall, and F1 score and the obtained accuracy is compared for both acoustic features with traditional machine learning classifiers for speaker identification. A significant improvement of 3% to 7% classification accuracy is achieved over the DNN and twice to that of shallow machine learning classifiers for 2D-CNN with MFCC. The proposed 2D-CNN model with an F1 score of 85.71% for text-independent speaker identification makes it plausible to use speaker

	ID as a classification approach for organizing video lectures automatically in a MOOC setting.
B0079 Session 1 Presentation 3 (14:00-14:15)	Virtual Public Cloud Model in Honeypot for Data Security: A New Technique **Apurva Saxena**, Gaurav Ubnare and Anubha Dubey Rabindranath Tagore University, India *Abstract*—A honey pot is a technique of cloud computing that is proposed for capturing tracking unusual methods of attack. This technique will seize, recognize and duplicate the hacker behavior. It works in Cloud environment where anything like technology, tool, and result can be offered as a service. Purveyor's offerand deliver such services to their customers via the network. This paper presents the concept of implementation of high-interaction honeypot with Kerberos authentication system, VPC (Virtual Private Cloud), VPN (Virtual Private Network) and EFS (Elastic File System) as a service in cloud environment to provide overall security to the data/network. This would be easy to use, safe and cost efficient.
B0092 Session 1 Presentation 4 (14:15-14:30)	Proposing Automatic Dataset Generation System to Support Android Sensitive Data Leakage Detection Systems **Nguyen Tan Cam**, Nghi Hoang Khoa, Le Duc Thinh, Van-Hau Pham and Tuan Nguyen Hoa Sen University, Vietnam *Abstract*—Android sensitive information leakage datasets studies are still limited. Specifically, DroidBench dataset contains 120 case studies of which only 3 case studies are used for analyzing inter-application data flow. Therefore, increasing the number of case study of Android sensitive information leakage datasets is necessary to contribute to improving the accuracy of the evaluations of related research studies in the future. Besides this, the creation of datasets for the evaluation of systems for analyzing other components of the Android operating system such as Application Framework, Linux Kernel, ... is also necessary. In this paper, we propose a system that allows creation of test cases to assess sensitive information leakage detection systems on devices which are using Android operating systems. This system allows creating datasets containing case studies that cause sensitive data leakage not only in a chain of applications but also in the Application Framework component. Evaluation results show that the proposed system works stably with case studies which have a large number of application chains up to 1000 applications and 20 inter-application communication channels for each application pair.
	A Framework for Strategic Cloud Migration **Monjur Ahmed** and Navjot Singh Waikato Institute of Technology, New Zealand

B1003 Session 1 Presentation 5 (14:30-14:45)	*Abstract*—This paper presents a novel framework for organisations to carry out a structured feasibility study on Cloud migration and to decide Cloud Migration Strategy. Following the framework helps an organisation to decide whether Cloud migration is a feasible option for them, and if so, the best strategic approach towards Cloud migration. It is a crucial and sensitive part for any organisation to decide whether they should move to Cloud Computing platform. The decision requires strategic approach with proper feasibility study. Several technological, human, security and financial factors are involved in decision making process to move to the Cloud. The proposed framework helps an organisation to carry out a feasibility study to decide whether to move to the Cloud, and if so, what would be the best approach towards Cloud migration. The proposed framework addresses the factors that an organisation must explore to decide on Cloud migration. Cloud Computing has its own pros and cons. A whimsical decision to move to the Cloud may be disastrous for an organisation. Following the proposed framework will help organisations to carry out a structured and integrated feasibility study deal with the decision on Cloud migration.
B0072 Session 1 Presentation 6 (14:45-15:00)	Using Big Data Analysis to Retain Customers for Telecom Industry **Yuanhu Gu**, Thelma Domingo Palaoag and Alvin R. Malicdem University of the Cordilleras, Philippines *Abstract*—Nowadays, telecommunication markets are becoming more and more competitive, and customer churn is becoming more and more serious. In the tough competitive mobile market, Customer Churn Management is becoming more and more critical. In developing countries, most customers switch service providers because of good promotional incentives and lower monthly costs offered by competitive service providers. How to predict customer churn quickly and accurately becomes very important. In this paper, the researchers successfully analyzed the customer churn using big data feature analysis and multi-feature analysis. User data were modeled by XGBoost algorithm. The model is optimized repeatedly with GridSearchCV as a parameter tool. The accuracy of the model on the test set is 85.1%. The researchers predicted about 11000 customer lists per month that may be about to churn. Using K-means clustering method, 11000 churn target customers per month were classified into three categories and telecom companies are suggested to take some solutions which are found by feature analysis to retain customers. This big data analysis can be used to retain customers for the telecom industry.
	Hate Speech Detection on Indonesian Long Text Documents Using Machine Learning Approach **Nofa Aulia** and Indra Budi

B0026 Session 1 Presentation 7 (15:00-15:15)	Universitas Indonesia, Indonesia *Abstract*—Due to the growth of hate speech on social media is increasing in recent years, it is important to have understanding on this issue. An automatic hate speech detection system is needed to help countering this issue. There have been many researches on detecting hate speech in short document like twitter. But to our knowledge, research on long documents is rare, we suppose that the difficulty is increasing due to the possibility of the message of the text may be hidden. In this research, we explore in detecting hate speech on Indonesian long documents using machine learning approach. We build a new Indonesian hate speech dataset from Facebook. The experiment show that the best performance obtained by Support Vector Machine (SVM) as its classifier algorithm using TF-IDF, char quad-gram, word unigram, and lexicon features which yield f1-score of 85%.
B0056 Session 1 Presentation 8 (15:15-15:30)	Barriers to the Adoption of Electronic Medical Records in Select Philippine Hospitals: A Case Study Approach **Ryan A. Ebardo** and Nelson J. Celis Jose Rizal University, Philippines *Abstract*—The Philippine healthcare industry is in constant pursuit to provide quality medical services to every Filipino. Technology plays a pivotal role in this journey as it triggers the mechanism for the industry stakeholders to innovate and adjust to the dynamic requirements of healthcare. At the core of this technological revolution in healthcare is the digitalization of patients' medical records. This paper investigates barriers encountered by healthcare providers in adopting Electronic Medical Records, a technology considered as a basic necessity in majority of developed economies. Data is gathered through the guidance of the Technology-Organization-Environment. A multiple case study is operationalized to understand the barriers in the adoption of EMRs at an organizational level. Technology barriers include complexity, weak infrastructure and poor interface design. Organizational barriers are user resistance and the lack of appropriate skills. Environmental barriers include difficulty in regulatory compliance and inadequate medical school orientation. Limitations and future directions are discussed by this paper and followed by its conclusion.

Session 2

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 20, 2019 (Saturday)
Time: 13:30-15:30
Venue: The Jembrana Room
Topic: "Computer Science and Information Technology"
Session Chair: Prof. Yen-Wei Chen

B0032 Session 2 Presentation 1 (13:30-13:45)	Gamification for Teaching and Learning Java Programming for Beginner Students–A Review Jaouja Maiga and **Andi Wahju Rahardjo Emanuel** Universitas Atma Jaya Yogyakarta, Indonesia *Abstract*—Gamification is the use of game-design elements and game principles in non-game contexts. Nowadays, gamification becomes a new method used in teaching and learning programming concepts. The fundamental target of gamification is to increase motivation, experience and engagement which leads to fun and delight for students. Most early students have difficulties to understand the concept of Oriented Object Programming (OOP) in Java. This paper shows that Gamification as new trend can be used to solve the above problem by helping learners become very enthusiast and it provides the platform for them to be creative. This paper aims to give an overview of gamification in learning context which can help students to attempt learning Java programming Language. Being aware of the vulnerability of programming language mainly Java by using game as fun activity. Data in this study is based on a qualitative analysis of documents such as journals, books and the like. The result proved that gamification can be implemented to motivate and encourage learners to improve their skills in computer programming because gamification in education makes learners to be more fun and facilitates understanding of the coursework.
B0042 Session 2 Presentation 2	The Use of Simulation Software for Emergency Supply Transport to the Hospital **Katerina Vichova** and Martin Hromada Tomas Bata University in Zl ń, Czech Republic *Abstract*—In this paper, we describe the use of the simulation software for emergency supply transport to the hospital. The paper is divided into a few parts. Firstly, there is the introduction to the

(13:45-14:00)	transport and short history about it. Secondly, there is describe the transport infrastructure in the Czech Republic. The central part of the paper presents simulation software for the transport. In this part was selected simulation software PTV Vissim. Based on this software we use the simulation of the emergency supply to the selected hospital in the Czech Republic. Finally, there are conclusion and recommendation from this area.
B0050 Session 2 Presentation 3 (14:00-14:15)	An On-Line Spreading Factor Allocation for a LoRaWAN Network **Francesca Cuomo**, Antonio Maurizio, Laura Scipione and Nicola Blefari Melazzi University of Rome La Sapienza, Italy *Abstract*—LoRaWAN (Long Range Wide Area Network) is an interesting network technology for building ultra low-power instances of the Internet of Things (IoT) and motivated a significant interest in the recent literature. The contribution of this paper is twofold. First, we devise a model to evaluate the performance of algorithms used for assigning the best "resource patterns" to transmit packets on the wireless interface of LoRa; to this end, we adopt a Spatial Point Process to model the distribution of nodes in the system and we apply such a model to derive, in a compact way, the performance of a Spreading Factor allocation mechanism proposed in the literature. A second contribution of the paper consists in the definition of a new metric to estimate the network performance and of a new protocol to dynamically improve the above assignment algorithm. Both the metric and the algorithm are based on a re-transmission mechanism.
B0025 Session 2 Presentation 4 (14:15-14:30)	The Design of Typical Balinese Food Recommendation System Using Hybrid Method of Collaborative Filtering and Slope One Algorithm on Mobile Device Platform **I Gusti Agung Gede Arya Kadyanan**, Ida Bagus Gede Dwidasmara, Ida Bagus Made Mahendra, I Komang Ari Mogi and I Wayan Puguh Sudarma Udayana University, Indonesia *Abstract*—As a result of globalization in Indonesia especially Bali, the existence of fast food and food stalls owned by people from outside Bali, causing food stalls typical of Bali to be marginalized. Previous research by (Darmaja, 2016) succeded in making a recommendation system for Balinese food stalls on mobile platforms. The weakness seen from previous research documentation report, one of them is the use of Collaborative Filtering method which only use rating item as recommendation parameter of Balinese typical food stalls, causing new food stalls which do not have rating are less accessed in the

	system because they can not be recommended by system. The purpose of this study is that the typical Balinese food stalls that rarely get a rating can be recommended evenly with the help of ICHM (Item-based Clustering Hybrid Method) and Slope One algorithm. The result of the research is recommendation system of Bali food stalls in website and mobile platform by using throwaway prototype system development method, with recommendation accuracy based on the lowest MAE value of 0,11 and the highest is 1,06 and new items entered on the system (not yet rated) may be recommended based on item content in the ICHM method.
B0093 Session 2 Presentation 5 (14:30-14:45)	Least Significant Bit Hash Algorithm for Digital Image Watermarking Authentication **Stella D. Muyco** and Alexander A. Hernandez Technological Institute of the Philippines, Philippines *Abstract*—Recent advancements in data security like images, audio, and video have shifted the focus of security from using cryptography to steganography or both. Steganography the most widely used technique is the Least Significant Bit method which is simply and yet vulnerable to attacks. However, the study of modifying the Least Significant Bit method would be challenging or impractical to look at the hidden message domain where the process of extensive study must be done. However, due to its simplicity of the Least Significant Bit method, this technique could be easily modified but the challenge is how you will modify with the digital image will be safety and integrity which is the top issue on information explosion. This study provides novelty on digital watermarking using least significant bit hash algorithm and is analyzed using data capacity analysis, histogram analysis, and hamming distance.
B0033 Session 2 Presentation 6 (14:45-15:00)	Generating of Sign System for Bahasa Indonesia (SIBI) Root Word Gestures Using Deep Temporal Sigmoid Belief Network **IGM Surya A. Darmana** and Erdefi Rakun Universitas Indonesia, Indonesia *Abstract*—Sign language is a language that uses a combination of hand gestures and lip movements for people with hearing impairment to communicate. In Indonesia there are two sign language systems used, Sign System for Indonesian Language known as SIBI (Sistem Isyarat Bahasa Indonesia) recognizes as the official sign language system by the Indonesian Government. This research is focused on the generation process of skeleton sequence; in which represent a SIBI hand gesture excluding the finger joints. The hand skeleton that will be generated from the generation process is limited to root-word gestures only. Some researchers were using a Restricted Boltzmann

	Machine model and its variant known as Deep Belief Networks (DBN) to solve the sequence modelling problems. One of DBN variants is Sigmoid Belief Network (SBN). An SBN is a Bayesian network that models a binary visible vector. Deep Temporal Sigmoid Belief Network (DTSBN) is a sequence of SBNs (with deep architecture) arranged in such way that at any given time step has a fully generative process capability, where data are readily generated from the model using ancestral sampling. Since, DTSBN performance is quite novel for this particular case, we decided to implement the DTSBN model using the SIBI dataset from the previous research to construct generated hand-skeleton gestures which represent SIBI's root-word gestures. Based on the success of the experimental DTSBN model that has been successfully generated new skeleton sequences, which represent a SIBI hand gesture. Some of the inputs to the model include cartesian coordinates from shoulder joints, elbow joints, and wrist joints and the newly generated data are proven have no significant difference with the actual data set.
B0013 Session 2 Presentation 7 (15:00-15:15)	Towards Computer-Vision-Based Learning from Demonstration (CVLfD): Chess Piece Recognition **Regina Wolff**, Anoshan Indreswaran, Matthias Krauledat and Ronny Hartanto Rhine-Waal University of Applied Sciences, Germany *Abstract*—We present an approach to develop algorithms to offer 'Learning from Demonstration'. Our aim is to realize Computer Vision as resource-efficient as possible in applications where people interact with computers or -as a special case- with robots. This paper explains the development of a classification program which is to be integrated to a robot that will autonomously play chess. The problem is to perform a classification on a 12 class data set of chess pieces which works on a real-time video feed. We develop two different approaches to solve the problem: A one-step classification is compared to a two-step procedure based on accuracy, computational time and robustness.
B0007 Session 2	A Mobile Application System for Community Health Workers-A Review Gahizi Emmanuel, Gilbert Gutabaga Hungilo and **Andi Wahju Rahardjo Emanuel** Universitas Atma Jaya Yogyakarta, Indonesia *Abstract*—Community Health workers (CHWs) are the foundation of public health services aimed to connect the gap between communities, health and social service system, and it is done by navigating the health and human services system and educating

Presentation 8 (15:15-15:30)	communities on disease prevention. Unfortunately, the way of sharing and accessing information for delivering the services is often very unreliable by using manual system for reporting which can cause error and falsification. Furthermore, the Staff which performs these duties often they do not have knowledge about disease and health system training or education. To address this need, a mobile application System for CHWs is needed, which enables community health workers to automatically send a report of monthly activities without using any manual input form. Making use of the digital device (the smartphone, PDAs, and The Augmented Reality Personal Digital Assistant .The mobile application will automatically allow submit a report, transfer knowledge, sharing information and receiving training by using the user interface which will have the features like social media. Also the electronic file for entering information will be filled automatically. The system will be recording and uploaded to a central server for use by CHWs supervisor and the health manager official. This article provides ICTs with a regard to Mobile Health System and the probable of field which are lacking. Its absence is root of challenges faced by CHWs, the solutions to challenges is to design technological (Mobile Health System) which create durable, imperishable answers for tending to the world's wellbeing need.


15:30-16:00	**Coffee Break**

Session 3

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 20, 2019 (Saturday)
Time: 16:00-18:00
Venue: The Tabanan Room
Topic: "Image Detection and Pattern Recognition"
Session Chair: Prof. Blefari Melazzi

B0088 Session 3 Presentation 1 (16:00-16:15)	Non-Destructive Bridge Pavement Detection Using Impact Sound and Convolutional Neural Network **Jeffrey S. Sarmiento**, Cristina Amor M. Rosales and Arnel C. Fajardo Technological Institute of the Philippines, Philippines *Abstract*—The interlayer debonding of bridge deck pavement affects the overall durability of the bridge. Monitoring of the bridge deck pavement using a non-destructive method is important in the formulation of rehabilitation strategies that may be applied to the structures. Impact sounding technique is one of the preferred approached due to its simplicity and affordable. This study aims to determine the proper device specification to gather sound of a bonded and debonded bridge deck pavement. The captured sound is then analyzed by converting the sound into spectrogram and classified using the convolutional neural network following the inception v3 model. The results show a great accuracy in terms of classifying the sounds to determine the interlayer debonding.
B2020 Session 3 Presentation 2 (16:15-16:30)	Semivariogram Based Feature Extraction for Content Based Image Retrieval **Rajani N** and A Sreenivasa Murthy University Visvesvaraya, India *Abstract*—Semivariogram is widely accepted as a powerful tool for the classification of texture for the analysis of satellite images. An experimental semivariogram technique is proposed to extract the texture property from the color images. Then texture feature is used to retrieve the similar images from the large database. Experimental results show the good performance of the CBIR system for the Corel database. Euclidean distance measure is used for image matching process. The proposed approach improves the performance of the retrieval process.

B0001 Session 3 Presentation 3 (16:30-16:45)	Vehicle Number Plate Identification Using Template Matching Algorithm for Automatic Parking System Asih Setiyorini, **Ika P. N. Purnama**, Jayanti Y. Sari, Mutmainnah Muchtar and Edward Ngii Halu Oleo University Kendari, Indonesia *Abstract*—Nowadays, some parking system in Indonesia still use manual system that is the parking officer manually records every vehicle number plate that will be parked. This process is less efficient, because it consumes a lot of time and prone to errors. The application of digital image processing methods to automatic parking systems can overcome these problems. This research builds an automatic parking system by applying template matching algorithms. Template matching algorithm is used to help the process of analyzing all forms of character image objects on vehicle number plates, which include mapping the pixel intensity of character images, calculating errors, and searching for minimum error values. The advantage of template matching algorithm is that it processes data in the form of matrices whose computation level is not complex so it does not require a long processing time. Thus, the template matching algorithm is expected to be in accordance with the characteristics of an automatic parking system that will process large amounts of data. System testing has been carried out using 160 datasets of vehicle number plates and obtained good results with the highest accuracy of 91.7% and the average processing time of 13.7 seconds.
B0024 Session 3 Presentation 4 (16:45-17:00)	Indonesian Language Sign System (SIBI) Recognition Using Threshold Conditional Random Fields **I Gusti Bagus Hadi Widhinugraha** and Erdefi Rakun Universitas Indonesia, Indonesia *Abstract*—The Sign System for Indonesian Language or ‘Sistem Isyarat Bahasa Indonesia’ (SIBI) is a sign language system that is used to represent Indonesian language. The referred sign language is a systematic movement of fingers and hands to represent a vocabulary. This paper utilizes the Threshold Conditional Random Field (TCRF) model to identify gesture and non-gesture automatically. The generated model is an early model to establish a SIBI translation system automatically. Data that were utilized in this research are Skeleton, Image, and Skeleton–Image Combination. Data were processed by implementing TCRF algorithm to provide gesture and non-gesture labels automatically. Several experiments had pointed to the highest accuracy up to 81,5% by using skeletal data as an input in TCRF.
	Multilevel Thresholding for Coastal Video Image Segmentation Based on Cuckoo Search Algorithm

B0078 Session 3 Presentation 5 (17:00-17:15)	**I Made Oka Widyantara**, Nyoman Pramaita, I Made Dwi Putra Asana, Ida Bagus Putu Adnyana and I Gusti Ngurah Agung Pawana Udayana University, Indonesia *Abstract*—In the coastal video image segmentation, images are partitioned into land and sea classes, and each of these classes could have different segmentation qualities. In order to cope with variations in image quality and opaque areas, this paper has proposed a multilevel threshold technique based on the Cuckoo Search (CS) algorithm as an optimization algorithm for selecting optimum threshold values. The optimum threshold values are determined by maximizing Otsu's or Kapur's objective function using CS algorithm. The CS algorithm uses McCulloch's method for Lévy flight generation and combined with Otsu's and Kapur's objective functions to analyze CS algorithm performance. Based on the evaluations of PSNR, MSE, FSIM and CPU time parameters, the McCulloch's method based on CS algorithm with Otsu's objective function is the most promising and computationally efficient for segmenting coastal video images.
B0053 Session 3 Presentation 6 (17:15-17:30)	Robust Face Recognition with Assistance of Pose and Expression Normalized Albedo Images **Huan Tu,** Kunjian Li and Qijun Zhao Sichuan University, China *Abstract*—Facial albedo images are believed to be invariant to external factors of pose, illumination and expression that can greatly affect the appearance of face images and thus face recognition accuracy as well. Unlike most existing face recognition methods that address the impact of one or two of these external factors, we propose an end-to-end network, which consists of De-Light Network (DL-Net) and Normalization Network (N-Net), to generate normalized albedo images with neutral expression and frontal pose for input face images. DL-Net aims to eliminate the effects of illumination and reconstruct a posed albedo image that has the same pose and expression as the input image. N-Net attempts to generate a pose and expression normalized albedo image and extract identity features under the supervision of the normalized albedo images. Our experiments on the Multi-PIE database show that the extracted identity features can effectively assist conventional face recognition methods to improve face recognition accuracy under varying poses, illuminations and expressions.
	Hybrid Detection for Vehicle Blind Spot using Fisheye Camera: A Framework **Luis G. Cadiz III** and Alexander A. Hernandez Technological Institute of the Philippines, Philippines

B0094 Session 3 Presentation 7 (17:30-17:45)	*Abstract*—Many vehicular accidents occur because of a blind spot. Previous studies of blind spot reveal that an algorithm becomes weak if the car is near, car detection is 5 to 10 meters only, and the detection rate is not high. A study on fisheye detection using hybrid algorithms for vehicle blind spots can address the issues about accidents in the national and city roads. The hybrid algorithms involved for vehicle detections are rapid AdaBoost Classifier, Background Subtraction, and Color Edge Detection. This study can be very efficient and can give more accurate vehicle detection. As a result, the study will give the driver's awareness and warning from the incoming threats for any untoward accidents.
B0054 Session 3 Presentation 8 (17:45-18:00)	Face Presentation Attack Detection Based on Exclusivity Regularized Attention Maps Yong Wu and **Qijun Zhao** Sichuan University, China *Abstract*—With the wide spread of face recognition systems (FRSs) in our daily life, the security problem of FRSs, particularly presentation attack (PA) with printed photos or recorded videos, is becoming more and more serious. Inspired by the finding of prior studies that different regions on faces seem to have different contributions to the detection of PA, in this paper, we propose an attention based method which can learn to find spatial regions containing more useful information for detecting PA and meanwhile suppress less useful ones. In order to further improve the performance, we introduce exclusivity regularization to reduce the redundancy between different attention maps, and employ ranking loss to better fuse the classification results on the obtained multiple attention maps. The proposed network can be trained effectively in an end-to-end manner. Intra-evaluation experiments on Oulu-NPU dataset and cross-testing experiments between CASIA-MFSD and Replay-Attack show that the proposed method achieves competitive results compared with the state-of-the-art.

Session 4

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

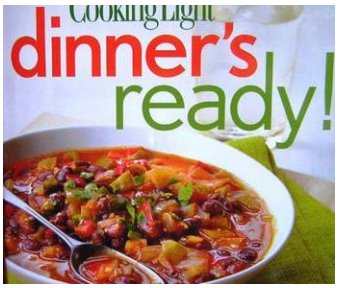
Afternoon, April 20, 2019 (Saturday)
Time: 16:00-17:45
Venue: The Jembrana Room
Topic: "Sensing Technology and Intelligent Control System"
Session Chair: Assoc. Prof. Sugiono Sugiono

B2021 Session 4 Presentation 1 (16:00-16:15)	Development of Hybrid EEG-fEMG-Based Stress Levels Classification and Biofeedback Training System **Kanyaphorn Ngamsomphornpong** and Yunyong Punsawad Silpakorn University, Thailand *Abstract*—This paper proposes a development of stress level classification system by using a cooperation between electroencephalography (EEG) and facial-electromyography (fEMG) signals. The propose consist of two main parts, first is an observation of brain and facial muscular activities during stress state which is activated by mental arithmetic test. Second part is the proposed of EEG-fEMG for stress levels classification system and the design of fEMG-biofeedback training system to reduce a stress. The results reported that EEG beta feature of frontal region achieved a high average accuracy. Moreover, EMG frequency domain feature achieved a higher accuracy than time domain feature. EEG-fEMG can be possibly used for stress levels classification, for biofeedback training system, fEMG might be used for stress reduction. In the future, we will test with various of subjects and implement the proposed fEMG biofeedback training system for stress reduction.
B2007 Session 4 Presentation 2 (16:15-16:30)	Application of SVM for Evaluation of Training Performance in Exergames for Motion Rehabilitation **Matteo Morando**, Marco Trombini and Silvana Dellepiane Università degli Studi di Genova, Italy *Abstract*—Nowadays, the tools for remote monitoring and training analysis are a matter of deep interest in the field of telerehabilitation. In this study we present a method for the automated evaluation of performance in exergames for motor rehabilitation that can be performed by the patient, even autonomously in a domestic environment, with Microsoft Kinect and Leap Motion. The proposed method is based on a machine learning approach utilizing the

	Support Vector Machine (SVM). It uses a radial basis function kernel that deals with a two-class classification problem. The performance outcomes for one of the 10 exergames developed by our team are provided as a case study. After a crucial phase consisting of hyperparameter optimization, the SVM algorithm proved to be able to distinguish the "Good" class from the "Other" class with an accuracy of 0.80.
B2013 Session 4 Presentation 3 (16:30-16:45)	Power Outage in the Hospitals **Katerina Vichova** and Martin Hromada Tomas Bata University in Zl ń, Czech Republic *Abstract*—Numerous extraordinary events and crisis threaten the whole world. These situations endanger the lives, health, and property of citizens. These crises also affect crucial other infrastructure features not only in the Czech Republic. Health facilities are also under threat. This article focuses on crisis preparedness of the hospitals. Each hospital has to face extraordinary events such as a power outage. The hospital cannot operate without electricity in the event of an outage. Each hospital is prepared for this event differently. Each hospital has different generators, different fuel supplies, and various suppliers. For this purpose, the proposed assessment system should be used to determine the crisis preparedness of the hospital for a power outage. The aim of this paper is to present the proposed hospital evaluation system. The article also introduces the problem of security threats and crisis preparedness of the hospitals.
B0044 Session 4 Presentation 4 (16:45-17:00)	A 6LoWPAN-Based Thermal Measurement, and Gas Leak for Early Fire Detection using Artificial Neural Network **Ericson D. Dimaunahan**, Alec Denji S. Santos, Emmanuel Freeman H. Paloma, Jacob Martin S. Manguiat, Louie Andrie R. Reyta, Adrian Robert J. Doroteo, Darwyn James C. Goling and Franklin Godwin M. La ñojan Mapua University, Philippines *Abstract*—Fire is a reoccurring problem in the Philippines, and is costing the government billions of pesos in property damage along with several hundred fatalities every year. Existing fire alarm systems are prone to false alarms because it relies solely on detecting smoke. Unmonitored heat and gas leakages were two of the top causes of fire incidents in previous years. Incorporating the MQ-5 and MQ-2 gas sensors with the AMG8833 thermal imaging camera will allow for an accurate fire monitoring system that is less prone to false alarms. Using the two gas sensors will allow for the monitoring of LPG, Butane, and CH4. Also method of interpolating the display of the AMG8833 from 8x8 pixels to 70x70 was developed and sensor data was sent wirelessly to Thingspeak. The thermal camera and the gas sensors both correlated to accurately assess fire hazards. A wireless

	communication with the user was used on the system to shorten the time of response of the fire fighter when fire alarm is triggered. The sensors are connected wirelessly over 6LoWPAN and uses ANN (artificial neural network) for forecasting possible future sensor reading and identification. A best validation performance of 65.3892 at epoch 72 was achieved running the Matlab Neural Network Toolbox using the Scaled Conjugate Gradient Algorithm.
B0080 Session 4 Presentation 5 (17:00-17:15)	Person Localization in an Indoor Environment with Artificial Intelligence **Elena Acevedo**, Ricardo Orozco, Antonio Acevedo and Federico Felipe Instituto Politécnico Nacional/ESIME Zacatenco, Mexico *Abstract*—Associative models are Artificial Intelligence tools and have been used in many applications such as pattern recognition, classification, encryption, among others. In this paper we applied these models to trace a person in an indoor environment by the means of the power of a wi-fi signal. We deal with this problem as a classification task. We used a preprocessing for the data to improve the results. Our performance was 95.75%.
B1002 Session 4 Presentation 6 (17:15-17:30)	Temperature Stability and Humidity on Infant Incubator Based on Fuzzy Logic Control W. Widhiada, **T. G. T. Nindhia**, IN Gantara, IN. Budarsa and IN. Suarndwipa University of Udayana, Indonesia *Abstract*—Premature babies were born need to be placed inside an incubator to keep its body temperature and humidity in a certain condition. In this paper shows the design and implementation of baby incubator using intelligent control to keep the temperature and humidity. The particular incubator uses an Arduino Mega 2560, an Arduino Uno, an DHT22 Sensor, and an LM35 Sensor . Fuzzy Logic Control has implemented inside the Arduino Mega 2560 to keep the maximum overshoot oscillations and to keep the error signal under 5%. The desired temperature is around 36˚C and the humidity around 80% to 60% RH value. The research is conducted in two sessions, one without a load and one with 2 Kg load to simulate the weight of a Baby. The testing result of incubator without load has achieved the stability level which it is quicker than with 2 kg load. Overall the maximum overshoot and the signal error on both research accomplished with the set goal is under 5%.
	Human Skeleton Feature Extraction from 2-Dimensional Video of Indonesian Language Sign System (SIBI [Sistem Isyarat Bahasa Indonesia]) Gestures **Aulia Astrico Pratama**, Erdefi Rakun and Dadan Hardianto University of Indonesia, Indonesia

B0006 Session 4 Presentation 7 (17:30-17:45)	*Abstract*—Indonesian Language Sign System (SIBI) is the official sign language system used in Indonesia. A model that could translate SIBI gesture taken from a video would be very useful for communicating with people with disabilities. One of the features needed to translate SIBI gesture to words is the subject's skeleton. In this paper, we researched a method to extract this feature from 2-Dimensional video. The method reconstructs skeleton model based on the position of head, shoulders, elbows, and hands of the subject. The head is located with haar cascade and the shoulders are pinpointed based on the location of the head. The hands are located with skin segmentation technique and then tracked throughout the video with Lucas-Kanade method. The elbows are extrapolated based on the shoulder and hand points, and the body silhouette. The experiment with LSTM model resulted in maximum testing accuracy of 98.214%.



Dinner	
18:00-20:00	**The Restaurant Coffee Shop**

Session 5

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Morning, April 21, 2019 (Sunday)
Time: 11:05-12:35
Venue: The Tabanan Room
Topic: "Biomedical Image Processing"
Session Chair: Prof. Qijun Zhao

B2006 Session 5 Presentation 1 (11:05-11:20)	Image Processing Techniques for Detecting and Classification of Plant Disease – A Review Gilbert Gutabaga Hungilo, Gahizi Emmanuel and **Andi W. R. Emanuel** Universitas Atma Jaya Yogyakarta, Indonesia *Abstract*—Agriculture is the main contributor to Tanzania Economy. Apart from climate change, disease acts as one of contributing factors which results in the poor production of the most important staple foods like maize and cassava. This leads to economic loss and food insecurity in the area. Preventive action is needed for early detection of the diseases. Image processing techniques to detect disease on plant leaves can be a promising solution to the farmer. The current way of detecting disease using naked eyes done by an expert is a time-consuming and cumbersome task to implement in a large farm. This paper presents a survey of current studies in the area of image processing, by checking techniques used to detect disease on plants leaves or fruits and machine learning model used to classify the disease. The main aim of the paper is to show the current state of the art and clarify step taken during the image processing stage and check merit and demerit of each technique used also the performance of the machine learning model used to classify the disease. This review paper will be of important to other researchers working in the area of image processing for detecting and classification of plant – leaves/fruit diseases to know the current state of the art in the field.
B3003 Session 5 Presentation 2 (11:20-11:35)	Comparison of Machine Learning–Based Radiomics Models for Early Recurrence Prediction of Hepatocellular Carcinoma **Panyanat Aonpong**, Qingqin Chen, Yutaro Iwamoto, Lanfen Lin, Hongjie Hu, Qiaowei Zhang and Yen-Wei Chen Ritsumeikan University, Japan *Abstract*—BACKGROUND & AIMS: Using a radiomics model, we

	investigated computed tomography images to make a preoperative prediction of the early recurrence (ER) of hepatocellular carcinoma (HCC). A radiomics model mainly consists of feature extraction, feature selection, and classification. The conventional method used least absolute shrinkage and selection operator (LASSO) regression to select the features and the classification. METHODS: We compared the new combination of feature selection and classification methods for the preoperative ER prediction of HCC. The new combination gave a significantly higher accuracy than the conventional method. Twelve combination models were provided by using different combinations of the feature selection methods and the classification methods. We used three classification methods, which included LASSO, linear support vector machines (SVMs), and decision trees. We compared the performance of each method by using the area under the curve of the receiver operating characteristic to show a more appropriate way to detect the ER of HCC. In addition, we compared the efficiency term of each feature elimination method. These two comparisons can measure the quality of feature selection and the compatibility between both the feature selection and classification phases. RESULTS: Approximately 65 features were selected from 300 features. Our proposed combination showed that the accuracy could be improved by using the SVM classification method for new radiomics models. The accuracy of feature selection using LASSO regression with Support Vector Machine classification can reach 0.8918, whereas this accuracy reaches 0.8779 when support vector machine-recursive feature elimination is used with LASSO classification.
B2017 Session 5 Presentation 3 (11:35-11:50)	Depth Estimation for Instrument Segmentation from a Single Laparoscopic Video toward Laparoscopic Surgery Support **Takuya Suzuki**, Keisuke Doman aand Yoshito Mekada Chukyo University, Japan *Abstract*—It is necessary to extract surgical instruments such as forceps from laparoscopic images in order to improve the safety of laparoscopic surgery using a surgery support system. For image segmentation for surgical instruments, a deep learning technique such as a fully-convolutional neural network (FCN) is effective. It is known that the segmentation accuracy can be improved by using a stereo camera, because the depth information as well as color information on surgical instruments should be useful. This paper proposes a FCN-based depth estimation method from a single laparoscopic image captured by a monocular camera. And also proposes a U-Net-based image segmentation method using on the estimated depth information as well as color information. In experiments with the dataset of the MICCAI challenge, our method

	improved both the average IOU and Dice coefficient by about 2%, comparing with a comparative method using only color information. We confirmed the effectiveness of our method.
B3004 Session 5 Presentation 4 (11:50-12:05)	Cine-MR Image Segmentation for Assessment of Small Bowel Motility Function Using 3D U-Net **Kazuki Otsuki**, Yutaro Iwamoto and Yen-Wei Chen Ritsumeikan University, Japan *Abstract*—In this study, we propose an automated method for assessing small bowel motility function with cine MRI using 3D U-Net, which is a kind of deep fully convolutional neural networks for 3D semantic segmentation. In the proposed method, the cine MR images (temporal MR image sequence) is treated as a 3D image. We applied 3D U-Net, which employs 3D convolution, to automatically segment the temporal small bowel image sequence. Compared with the conventional 2D U-Net, in which the small bowel was segmented without temporal information and just segmented frame by frame, the proposed 3D U-Net can accurately and simultaneously segment all frames using temporal information. This is the first 3D fully convolutional network for small bowel segmentation in cine MR images (temporal sequence images), to the best of our knowledge. The small bowel motility function is assessed by the use of the segmented temporal MR image sequence. Experimental results demonstrate the effectiveness of the proposed method.
B0040 Session 5 Presentation 5 (12:05-12:20)	Biometric Identification Through ECG Signal Using a Hybridized Approach **Ubaid-ur-Rehman**, Khurram Kamal, Javaid Iqbal and Muhammad Fahad Sheikh National University of Sciences & Technology (NUST), Pakistan *Abstract*—Automatic identification of individuals using biometric features is an area that has gained high importance nowadays. The paper presents a novel approach for biometric identification through ECG signal using hybridization of different features and Radial Basis Function Neural Network (RBF-NN). Three different features namely ARIMA, Wavelet Entropy, and Sample Entropy are extracted from an ECG dataset. The features are then fed to an RBF-NN to identify different individuals. In the past, these features were used individually for person identification. This paper presents an approach for person identification by hybridization of the above mentioned features. The proposed approach shows promising results with an accuracy of 99.50% to identify 55 individuals correctly.
B0085 Session 5	The Possibility of Using Diagnostic Methods EEG and sEMG in Rehabilitation **Zuzana Koudelkova**, Roman Jasek and Martina Zabcikova

Presentation 6 (12:20-12:35)	Tomas Bata University, Czech Republic *Abstract*—The primary purpose of this paper is to show the possibility of using diagnostic methods in rehabilitation. The article described two types of methods - electroencephalography (EEG) and surface electromyography (sEMG). The first section of this article describes both technologies and devices, which were selected. The second section defines the experimental part. Experimental part is divided into the possibilities of using EEG and sEMG methods. EEG method recognizes brain wave pattern abnormalities. Conversely, sEMG is used to recover from muscular imbalances and abnormalities. At the end of the article, we specify future research based on both technologies which can work together.

Session 6

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 21, 2019 (Sunday)
Time: 13:30-15:00
Venue: The Tabanan Room
Topic: "Data Mining and Data Analysis"
Session Chair: Prof. Tjokorda Gde Tirta Nindhia

B0027 Session 6 Presentation 1 (13:30-13:45)	Finding Frequent Routes from Taxi Trips with Time Windows: NYC Case **Wahyu Andy Prastyabudi** Institut Teknologi Telkom Surabaya, Indonesia *Abstract*—Data produced by a transportation system is inevitably growing ever larger. Thus, exploiting the data for analytic purpose is required to comprehend the salient pattern and to improve transportation system itself. This paper presents a solution towards finding frequent routes from taxi trip with certain time windows. MapReduce approach is used to tackle enormous data processing of taxi trips. In the meantime, quadrant-based partition and hashing technique are proposed to reduce the computation time while searching the frequent routes. The application of the proposed approach is demonstrated using the real taxi trip data around New York City.
B0038 Session 6 Presentation 2 (13:45-14:00)	Assessing CSU Students' Academic Performance on iLearn Portal Using Data Analytics **Charlot L. Maramag** and Thelma D. Palaoag Cagayan State University, Philippines *Abstract*—E-learning has a substantial role in the instruction of students in higher education. iLearn Portal is one of the e-learning tools being used in Cagayan State University. This study focused on the impact of iLearn Portal on the academic performance of the students. This is undertaken to identify whether the socio-demographic profile of the students and level of perceptions on iLearn Portal may influence the Academic Performance of the students. Simple linear regression analysis is used to analyze the significant effect of the demographic profile of the students on academic performance. The study agreed that in order to foster students' academic performance, a positive perception will be

	considered. Also, some of the demographic profiles have a significant impact on the academic performance of the students. This study could benefit the students as well as the institution to be more conscious in embracing technology to facilitate teaching and learning.
B0087 Session 6 Presentation 3 (14:00-14:15)	A Hybrid Similarity Measure Based on Binary and Decimal Data for Data Mining **Soyeong Jeong** Ulsan National Institute of Science and Technology(UNIST), Republic of Korea *Abstract*—We suggest a new similarity measure to improve the quality of data mining, especially for recommender system. A similarity measure is widely used for classification, clustering, anomaly detection and so on. Many recommender systems predict unrated score through clustering similar users. This method is so called collaborative filtering(CF), which is being widely used. In CF, how to define a similarity measure is a major concern. Conventional measures based on Pearson Correlation Coefficient(PCC) are hard to reflect the implicit and explicit information at the same time. We propose a hybrid similarity measure, named BD PCC, which is a type of PCC, named after the first letter of 'Binary' and 'Decimal' types respectively. As we suggest from its name, BD PCC is defined by concatenating two PCCs on two different types of data. Although other hybrid measures need some processes to concatenate, BD PCC is free from scale issue. Because it consists of both PCCs unlike other hybrid measures consisting of values in different ranges. Since PCC for binary data can be defined if the user bought at least one item, BD PCC relieves the sparsity of data. We tested the proposed similarity measure with recommender systems and showed that the prediction accuracy has been improved for real data sets, MovieLens 100K, MovieLens 1M, MovieLens latest small, and FilmTrust 35Ks.
B0043 Session 6 Presentation 4 (14:15-14:30)	Characterization of Disaster Related Tweets According to Its Urgency: A Pattern Recognition **Michael E. Acosta** and Thelma D. Palaoag Pangasinan State University, Philippines *Abstract*—With the pervasive utilization of social media platforms such as microblogging site eg. Twitter to express and share information, it has also become a very useful and helpful tool in times of evolving crisis situations. Extracting interesting and meaningful patterns in the context of disaster is very helpful to determine relationships among them. Association rule mining aims to discover frequent patterns, relationships among set of items in the database. This paper describes text mining technique for extracting

	association rules from disaster related tweets. It sought to characterize disaster related tweets in terms of urgency, whether they are carrying information that requires immediate attention or not. They were harvested from Twitter using Rapid Miner and from existing collection of tweets. We employed association rules using the FP-Growth algorithm for discovering significant and interesting patterns on disaster related tweets for the emergency responders to determine behavior of users in times of mass emergencies. We used support and confidence as statistical measure to observe the usefulness of the association rules. Based on the result, we discover meaningful patterns of urgent tweets, however, for the not urgent Twitter posts, we only discovered 4 interesting patterns.
B1008 Session 6 Presentation 5 (14:30-14:45)	An Investigation of the Situation of the Using Handheld Devices on Learning Mathematics of High School Teachers in Mainland China **Hsiu-Lan Ma**, Tzu-Chun Chien and Der-bang Wu Ling Tung University, Taiwan *Abstract*—This research was undertaken to investigate of the situation of the using handheld devices on learning mathematics of high school teachers in Mainland China. A questionnaire of "Using Handheld Devices on Learning Mathematics (UHDLM)" was developed. The contents presented were partial results of the project funded by the Ministry of Science and Technology (MOST) of Taiwan. under Grant No. MOST 106-2511-S-275-004 -MY2. Questionnaire of UHDLM was used as the measurement instrument in order to investigate the situation of using handheld devices on learning mathematics. This instrument was developed and revised many times during Feb. to June, 2018. This instrument was developed and revised five times during Feb. to Jun., 2018. Finally, there are 6 problems in the first part, 31 problems each in the second and third part, totally 68 Problems, in the formal questionnaires for high school teachers. The results were drawn as follows: 1. There are 57.8% of mathematics teachers of the high school in Mainland China using handheld devices to assist in learning mathematics. 2. There are 54.3% of the grader 10 that mathematics teachers of the high school in Mainland China use handheld devices to assist in learning mathematics, follows 28.6%, 15.7% for grader 11 and grader 12, respectively. 3. There are 33.9% in how to improve the teaching effect that mathematics teachers use handout to assist in learning mathematics, follows 29.7%, 12.7% for hand-on instruction and GeoGebra, respectively. 4. Among the teachers who did not use the handheld device to assist in teaching, the reason for "not using the computer-related equipment" was the main factor, accounting for 26.9%, followed by I do not know how to use it effectively, accounting for 18.3%. If there are relevant learning opportunities, 93.6% of the teachers are willing to participate.
	Valuation of the Selected Philippine E-Government Websites' Performance with Prescriptive Analysis **Kristen Bhing V. Salvio** and Thelma D. Palaoag

B0061 Session 6 Presentation 6 (14:45-15:00)	Pangasinan State University, Philippines *Abstract*—Information and Communication Technologies have the potential to transform the political landscape by engaging citizens in the governance process. Whether citizens find value in utilizing these technologies is contentious. This paper sought to evaluate the performance of the selected Philippine e-government websites using automated testing tools. We employed comparative analysis to identify these tools: Website Grader, GTMetrix and the Pingdom Tool which has common parameters to evaluate websites' performance. The main findings of this paper shows that recommendations from prescriptive analysis is suited for the improvement of an e-government website and offers the best solutions. These findings could offer new insights for academic researchers, government agencies, and practitioners, to measure e-government satisfaction and its impact upon citizen trust.

Poster Session

April 21, 2019 (Sunday)
Time: 15:00-16:00
Venue: The Tabanan Room

B0016 Poster 1	Determination of Areas for New Renewable Energy Development Using Fuzzy Logic for the Region of Southeast Sulawesi La Ode Muh. Golok Jaya, **Ika P. N. Purnama**, Sutardi, Adha Mashur Sajiah and Dwi Aulia Priandini Halu Oleo University Kendari, Indonesia *Abstract*—Renewable energy is the energy which is derived from a limitless source. Proper utilization of energy resources is a hot debating topic these days. It is very essential to choose which one of energy source must be used and why. Majority of factors such as cleanliness, cost, stability, efficiency and environmental effects must be taken into account. It is a bitter fact that many industries around the world are still dependent on fossil fuels for electricity generation. No doubt, these fuels are very effective as far as power production quality is concerned, but in the long run they are not advantageous. Fossil fuels will deplete one day and the industries must turn to renewable sources as soon as possible. For the development of renewable energy, government found one problems which is lack of knowledge for the determine renewable energy development areas. In this research we proposed using fuzzy logic for analyzing and calculating, so know what energy can be developed in the certain area. The data used on this study coming from BMKG data that's include wind speed, sea wave height and the amount of rainfall per year. The results of the research in the form of potential, and this is in accordance with the usual result of this research area. The result show in Southeast Sulawesi has potential to develop renewable energy from sunlight.
B0018 Poster 2	Decision Suport System to Increase Salary of Bank Sultra's Teller Employee with Performance Assessment Parameters Using Fuzzy Tahani Method and Simple Adaptive Weighting **Ika P. N. Purnama**, L.M Fid Aksara, Statiswaty, Rizal Adi Saputra and Ricky Ramadhan Halu Oleo University Kendari, Indonesia *Abstract*—The performance appraisal of this employee is to monitor the performance of a teller employee and determine whether the staff of Bank SULTRA tellers throughout the region is working optimally or not. The criteria regarding the evaluation of employee teller performance will be assessed in this research is to use 4 perspectives namely Customer (Customer Service), Internal

	Process (Employee Process), Financial (Bank Financial Development), Learning Growth (Learning & Developments). Assessment of these criteria still has ambiguous data. The purpose of this research is to apply fuzzy logic with Tahani method to evaluate performance of teller officer of Bank SULTRA and rank result of performance evaluation which have been reached by teller employee. While the results of this study is a model of a decision support system to evaluate the performance of teller employees with a fuzzy logic approach Tahani method that provides information about the performance evaluation employee teller results of the decision on the salary increase. Of the 10 teller employees who were tested using employee performance values, 6 employees were recommended to increase salaries while 4 employees were not recommended on the condition that the overall score> = 90 Highly recommended to increase salaries, overall score> = 70 and <90 were recommended to increase salaries, the overall score of <70 is not recommended to increase salary.
B0029 Poster 3	Popularity Prediction for Artists Based on User Songs Dataset Haiqing Yu, **Yanling Li**, Shujun Zhang and Chunyan Liang Inner Mongolia Normal University, China *Abstract*—Mining the relations among different objects from complex big data and predicting the trends of the main objects can help human beings to predict the future. This paper explores popularity prediction for artists based on a large dataset which contains user songs operations and relations between songs and artists. We compared the performance of different methods including long short-term memory (LSTM) neural networks and support vector machines (SVMs) for different perspectives. Experiments show that the performance of the SVM approach is better than the LSTM approach by approximately 1% in this big data task.
B0063 Poster 4	A Novel NLP Application to Automatically Generate Text Extraction Concepts from Textual Descriptions Imran Ahsan, **Mudassar Adeel Ahmed**, Saad Rehman, Muhammad Abbas and Muazzam A. Khan National University of Sciences and Technology (NUST), Pakistan *Abstract*—Text summarization has become a sophisticated approach for the quick searching, automatic sorting, abstract generating etc., to the large amount of data. The involvement of complete study of passage and extra time is needed to generate the essence of any content. Subsequently, Natural Language Processing is an information extraction approach to automatically extract the artifacts from the textual descriptions. Moreover, NLP is often applied to generate the various element of concerns like essential terms, class models, test

	cases from the initial Textual descriptions. However, it is usually required to study complete passage to extract relevant information from textual content that makes this process time consuming. This research article proposed a novel and fully automatic NLP methodology to generate crux from content. As a part of research, a tool Efficient Text Summary from Text (ETST) is developed. Research authentication is achieved through the implementation of two state-of-the-art case studies. The experimental outcome proved that our suggested Natural Language Processing methodology is novel and fully automatic and is also useful for the future researchers of this domain.
B0065 Poster 5	Interactive Learning (iLEARN) Tool: An eLearning Portal Designed Using MOODLE for Cagayan State University in the Philippines **Richard R. Ayuyang** Cagayan State University, Philippines *Abstract*—Interactive Learning (iLEARN) portal was designed using MOODLE to enable students and teachers to exchange knowledge not only inside the classroom but even online - anytime and anywhere. The main purpose is to help educators to create online courses which bring teachers and students to collaborate and interact online. With this e-learning platform, teachers can deliver their lessons, administer examinations and manage scores and grades of students online. On the part of the students, they can submit their requirements online, download resources, took exams and monitor their progress based on the grades given by their teachers. The platform was stored in a server powered by Ubuntu Linux Server 14.04 LTS where Apache as webserver, MySQL as the backend database and PHP as the parser. As a result, the said platform makes instruction process faster and accessible and upgrades teachers' methods and strategies in teaching and enhanced students' learning performance.
B0071 Poster 6	Research on Small Sample Target Detection Technology in Natural Scenes **Zhen Guo**, Jinlong Chen and Minghao Yang Guilin University of Electronic Technology, China *Abstract*—In order to accurately detect the target in a small number of samples, this paper uses the traditional machine learning method and the migration learning method to detect under a small number of sample conditions in the natural scene. In the traditional machine learning method, we use the haar feature and the AdaBoost method to detect the target. In the migration learning method, we use convolutional neural network to quickly learn the characteristics of target objects in natural scenes, adopt fine-tuning, segmentation training and multi-scale combination strategies to enhance the learning ability of the network, and learn the target features as much as possible under small sample conditions. Experiments show that these two methods can effectively detect targets under small sample conditions.
	Algorithm of Recurring Concept Drift Base on Main Feature Extraction **Junwei HU**, Jinlong Chen and Xingguo Qin

B0073 Poster 7	Guilin University of Electronic Technology, China *Abstract*—Recurring concept drift is one of the sub-types of concept drift. In recurring concept drift detection, it is very important to represent concepts and select the most appropriate classifier to classify. We propose an algorithm, conceptual clustering and prediction through main feature extraction (MFCCP), for classifying data stream with recurring concept drifts. MFCCP can recognize recurring concepts by computing the differences of main features and impact factors of different batches of samples. It maintains a classifier for each concept and monitors the classification accuracy to select classifier according to hoeffding inequality in order to enhance the ability of adapting to concept drift. The experimental results over the three datasets illustrate that MFCCP achieves better classification accuracy, adapts faster to concept drift, and detects concept drift more accurately than the other four algorithms on the data streams with recurring concept drifts, and therefore, MFCCP is apt to classify data stream without recurring concept drift.
B0074 Poster 8	Collaborative Recommendation for Scenic Spots Based on Distance **YiMing Jiang**, Jinlong Chen and Minghao Yang Guilin University of Electronic Technology, China *Abstract*—In the collaborative filtering recommendation algorithm, the similarity calculation plays an important role in the recom-mendation quality. For the traditional collaborative filtering recommendation algorithm, the similarity calculation is performed by a single user score, and the user's demand for the item cannot be accurately reflected. In order to solve this problem, the research proposes a distance-based scenic recommendation algorithm. The algorithm introduces the distance between the user and the item when performing the similarity calculation, then calculating the user's score on target scenic spots for recommendation. The experimental results show that, compared with the traditional collaborative filtering recommendation algorithm based on user score, the result of the distance-based scenic spot recommendation algorithm have some improvement in root-mean-square error, mean-absolute error, coverage, precision and f-measure.
B0076 Poster 9	Research on False Alarm Removal Method Based on SVM for Small Sample Target Detection **Qinghao Zeng**, Jinlong Chen and Minghao Yang Guilin University of Electronic Technology, China *Abstract*—In the target detection technology in the field of computer vision, the small sample target detection technology has a small number of samples and insufficient feature extraction ability, resulting in low detection rate and over-fitting. In this paper, a false alarm removal method for small sample target detection is proposed. The Haar +Adaboost algorithm is used for preliminary detection, and the false alarm target is removed by SVM to improve the accuracy of detection. The experimental results show that the accuracy of the

	small sample target detection is indeed improved, and the detection speed is also faster.
B0077 Poster 10	Predicting Student Dropout in a MOOC: An Evaluation of a Deep Neural Network Model Ali Shariq Imran, Fisnik Dalipi and **Zenun Kastrati** Linnaeus University, Sweden *Abstract*—Massive Open Online Courses (MOOCs) have transformed the way educational institutions deliver high-quality educational material to the onsite and distance learners across the globe. As a result, a new paradigm shift as to how learners acquire and benet from the wealth of knowledge provided by a MOOC at their doorstep nowadays in contrast to the brick and mortar settings is visible. Learners are therefore showing a profound interest in the MOOCs oered by top universities and industry giants. They have also attracted a vast number of students from far-flung areas of the world. The massive number of registered students in MOOCs, however, pose one major challenge, i.e., `the dropouts'. Course planners and content providers are struggling to retain the registered students, which give rise to a new research agenda focusing on predicting and explaining student dropout and low completion rates in a MOOC. Machine learning techniques utilizing deep learning approaches can eciently predict the potential dropouts and can raise an alert well before time. In this paper, we have focused our study on the application of feed-forward deep neural network architectures to address this problem. Our model achieves not only high accuracy, but also low false negative rate while predicting dropouts on the MOOC data. Moreover, we also provide an in-depth comparison of the proposed architectures concerning precision, recall, and F1 measure.
B2011 Poster 11	Assessment of the Emergency Preparedness of the Patient to Move from the Airport with Suspicion of Ebola **Marta Blahova** and Martin Hromada Tomas Bata University in Zl ń, Czech Republic *Abstract*—The aim of the article is to assess the readiness to move the patient from the airport with suspicion of Ebola rescue components of the Joint Rescue System of the Czech Republic (JRS). Assessing the Possible Risk and Causes of Patient Transport. The main part describes the course of the extraordinary event itself. It deals with the issues of transport, risks, and problems with which intrusion members of the JRS components could meet.
B2012 Poster 12	Epidemiological Threats and Preparedness of the Selected CFAs for the Transport of Infectious Patients **Marta Blahova** and Martin Hromada Tomas Bata University in Zl ń, Czech Republic *Abstract*—The aim of this paper, called Epidemiological Threats and Preparedness of Selected CFAs for the Transfer of Infectious Patients, is to analyze the possibilities and equipment of selected medical rescue services for

	the transport of a patient with HCD, and subsequently to suggest options that could lead to a more efficient work of their exit groups. Secondly, selected epidemiological threats of today are analyzed. Their brief history and more detailed one of them, namely the Ebola virus. The central part deals with the pandemic plan, its purpose, and the crises. At the end of the paper, biovak and its useful comparison are analyzed.
B2015 Poster 13	A Triple-Bit Coding Scheme for Digital Image Watermarking **Jamal Alsultan** Applied Science University, Kingdom of Bahrain *Abstract*—With the wide use of the internet and digital images, watermarking became very popular and brought the attention of many researchers. Image watermarking is the process of adding additional information (e.g. text) to the original image in order to provide copyright protection. Various ways of watermarking in both the transform domain and the spatial domain have been proposed. Watermarking algorithms aim to improve the watermark robustness, and to provide high imperceptibility and security. The impact of channel coding on the performance of watermarking is effective. It appears natural if one compares the watermarking problem with the transmission of a signal over a noisy channel. In this paper, a triple-bit error-correcting algorithm for digital image watermarking in the transform domain is proposed. The algorithm considers the stego-image as a channel and the compression attack as a noise signal. The proposed algorithm was evaluated against two well-known techniques, which are the Block coding and the Convolutional error-correcting code; it showed very good results in terms of watermark robustness comparing to the other two techniques. The proposed algorithm has been implemented using MATLAB.
B0012 Poster14	Detection and Classification of Retinal Red Lesions via Regional Spatial Transformations and Neural Networks **Muhammad Altaf Hussain**, Ubaid-ur-Rehman, Syed Osama Bin Islam, Muhammad Fahad Sheikh and Amber Javaid National University of Sciences & Technology (NUST), Pakistan *Abstract*—The worldwide loss in human vision is primarily associated with *Diabetic Retinopathy* (DR). It occurs due to accelerated levels of blood sugar thereby causing perforation, bulging and leakage of retinal blood vessels (BVs). DR commences with the emergence of small blood spots on the retinal surface known as *Microaneurysms* (MAs) that are subsequently transformed into heavy blood deposits called *Hemorrhages* (HGs). This paper proposes an optimized and computationally inexpensive digital image processing (DIP) technique for detection and classification of '*Retinal Red Lesions*' (RRLs) i.e. MAs and HGs using green channel of the digital fundus images. The basic essence of the proposed technique revolves around *regional spatial transformations* detection performed through *region based spatial filtering*, *matching features* and *neural networks* classification. The proposed technique comprises of five main stages

	i.e. *Pre-processing, Regional Spatial Transformations, Optimization, Features extraction* and *Classification*. *Speed Up Robust Features (SURF)* algorithm has been used for features selection & extraction while *Feed-forward Back-propagation Artificial Neural Network (FFBP ANN)* has been used for classification. The proposed technique has been successfully applied on commercially available digital fundus image data-set and has yielded 98.4% 'Sensitivity' (SE), 94% 'Specificity' (SP) and 98% 'Accuracy' (AC). The SE, SP and AC have also been compared with other RRLs detection methods and has shown highly promising and encouraging results.
B2018 Poster 15	Non-Destructive Clinical Assessment of Human Chronic Otitis Media Using a Fiber Based Surgical-Microscopic Optical Coherence Tomography Jaeyul Lee, Ruchire Eranga Wijesinghe, **Deokmin Jeon**, Naresh Kumar Ravichandran, Pilun Kim, Jinseok Bae, Mansik Jeon and Jeehyun Kim Kyungpook National University, Republic of Korea *Abstract*—Advancements of optical imaging techniques can be essential for numerous surgical applications in otology. The integration of optical coherence tomography (OCT) with surgical-microscope facilitates the simultaneous OCT and microscopic visualization of soft tissue structures of the surgical region with a high-resolution. Here, we developed a surgical-microscopic OCT system, which can be simply implemented during otitis media surgeries. The feasibility of the developed system was evaluated prior to human surgery by performing *ex vivo* experiments. Secondly, the developed system was well-utilized to clinically assess the preliminary findings of chronic otitis media of 6 patients. The developed surgical-microscopic OCT system adequately provided two dimensional and volumetric information of the residual inflammation region non-invasively. Use of the developed imaging device enables the surgeons to precisely define the aforementioned surgical requirements, while performing intraoperative imaging.
B3005 Poster 16	Biomedical Data Mining and Network Pharmacology Approach to Explore the Pharmacological Mechanism of YJZYT on Ovulatory Infertility **Yan Liu**, Ping Ye, Yingli Tao and Yangyang Geng Zhejiang Chinese Medical University, China In this paper, Biomedical Data Mining and network pharmacology are used to explore the molecular mechanism of Yang Jing Zhong Yu Tang(YJZYT). In order to obtain the effective active ingredie-nts in YJZYT and related targets of ovulation disorders infertility, a variety of network analysis platforms were used for data mining. In order to study the mechanism of YJZYT in the treatment of o-vulatory infertility, uniprot correction protein was used to constru-ct the interaction network. The DAVID database was used to perf-orm gene ontology functional enrichment analysis(GO analysis). The Kyoto Encyclopedia of Genes and Genomes(KEGG) was used to conduct pathway enrichment analysis. We analyzed and confirmed that the effective active ingredients of YJZYT, including be-ta-sitosterol, Stigmasterol, Mairin and so

	on, can effectively improve ovarian function and promote ovulation. In addition, YJZYT c-an also increase the ovarian expressions of FSHR, IGF-II, S-tAR mRNA and promote the follicular development.

Conference Venue

Patra Jasa Bali Resort & Villas

www.thepatrabali.com

Jl.Ir. H Juanda, South Kuta Beach, Kuta 80361 | Bali-Indonesia

Located along the white sands on South Kuta Beach, Patra Jasa Bali provides modern Balinese-style rooms. Including 2 dining options, it features a full-service spa, large lagoon pool and seaside pool. Free Wi-Fi is provided.

Patra Jasa Bali Resort & Villas provides free parking and a free shuttle service to Kuta Square, just over a kilometer away. It is a 5-minute drive from Ngurah Rai International Airport.

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For leisure, staff can arrange numerous activities such as water polo and cooking lessons. The resort also has a kid's club and a convenience store.

Overlooking the pool, Teratai Coffee Shop provides hearty buffet breakfasts and all-day dining.

Tips: 1. The registration fee doesn't include accommodation. Hotel should be booked by yourself. Please mention that you are the participant of ICCAI 2019 when you book the accommodation, then you can get a discounted price from the hotel.

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Academic Visit & Tour

9:00-19:00, April 22, 2019 (Monday)

(Tips: Please arrive at the Lobby of Patra Jasa Bali Resort & Villas on 8:50 a.m. The following schedule is only for participants who registered the Academic Visit & Tour. The following places are for references, and the final schedule should be adjusted to the actual notice.)

1. Assemble at Patra Jasa Bali Resort & Villas (9:00)

2. Visit Turtle Island of Serangan (9:30-10:30)

Serangan Island is located 10km south of Denpasar is often referred to as 'Turtle Island', due to it being a frequent nesting ground for green sea turtles. This has drastically changed over the years, and consumption of turtle meat as well as the use of sea turtles in ceremonies is now a tale of the past. Serangan Island is also home to Sakenan Temple, located on the westernmost edge of the island. Reclamations in the 90s have led to a drastic change of pilgrims' ways and the natural landscape. Once a separate land mass only reachable by traditional wooden boats, it is now easily accessed via a 110m bridge.

3. Visit Udayana University (11:00-12:00)

Udayana University was established by the Act of Minister of Higher Education Republic of Indonesia No.104/1962, on 9 August 1962, after an initial period as part of Airlangga University since 29 September 1958. It was the first university to be established in Bali Province. With four courses in 1962. In 1975, several faculties such as faculty of law, faculty of engineering, faculty of agriculture and faculty of economy was established. As of 2017, Udayana University have 13 faculties with faculty of marine and fisheries is the newest faculty was established in 2011.

4. Lunch at Garuda Wisnu Kencana (12:00-13:30)

5. Visit Uluwatu Temple

Uluwatu Temple is a Balinese sea temple in Uluwatu. The temple is regarded as one of the sad kahyangan and is dedicated to Sang Hyang Widhi Wasa in his manifestation as Rudra.

The temple is built at the edge (ulu) of a 70 meter high cliff or rock (watu) projecting into the sea. In folklore, this rock is said to be part of Dewi Danu's petrified

barque. Though a small temple was claimed to have existed earlier, the structure was significantly expanded by a Javanese sage, Empu Kuturan in the 11th Century. Another sage from East Java, Dang Hyang Nirartha is credited for constructing the padmasana shrines and it is said that he attained moksha here, an event called ngeluhur ("to go up") locally. This has resulted in the temple's epithet Luhur.

Ubud Pasar is traditional market that plays an essential role in the development and promotion of arts and culture in Ubud. It’s the perfect place to buy gifts for your love ones and maybe you buy yourself some Balinese paintings!

6. Dinner and Farewell Party at Jimbaran Beach

Jimbaran is just south of the airport and Kuta. This was formerly a real backwater of south Bali, just a tiny fishing village with a daily market. That all started to change in the 1980s and Jimbaran is now home to several world class 5 star beach resorts, plus a few more moderate mid-market hotels. There is, however, little in the way of budget accommodation and there are also many high-end villas in this area, particularly on the ridges of high ground above Jimbaran Bay. This has resulted in monikers such as the "Beverly Hills of Bali" or "Millionaire's Row"

7. Souvenir Shop

Note

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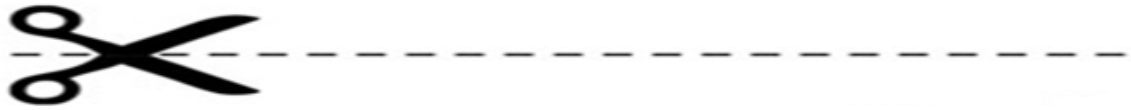

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Thank you for taking time to participate in this conference evaluation. Your comments will enable us to execute future conferences better and tailor them to your needs!