

2015 BOSI EDU JEJU ISLAND CONFERENCE SCHEDULE

**2015 4th International Conference on Machine Design and
Manufacturing Engineering (4th ICMDME2015)**

**The International Conference on Communication Systems and
Computing Application Science (CSCAS2015)**

**2015 The International Conference on Artificial intelligence
and control engineering (ICAICE 2015)**



Jeju Island, South Korea

May 16-17, 2015

<http://www.icmdme.org/>

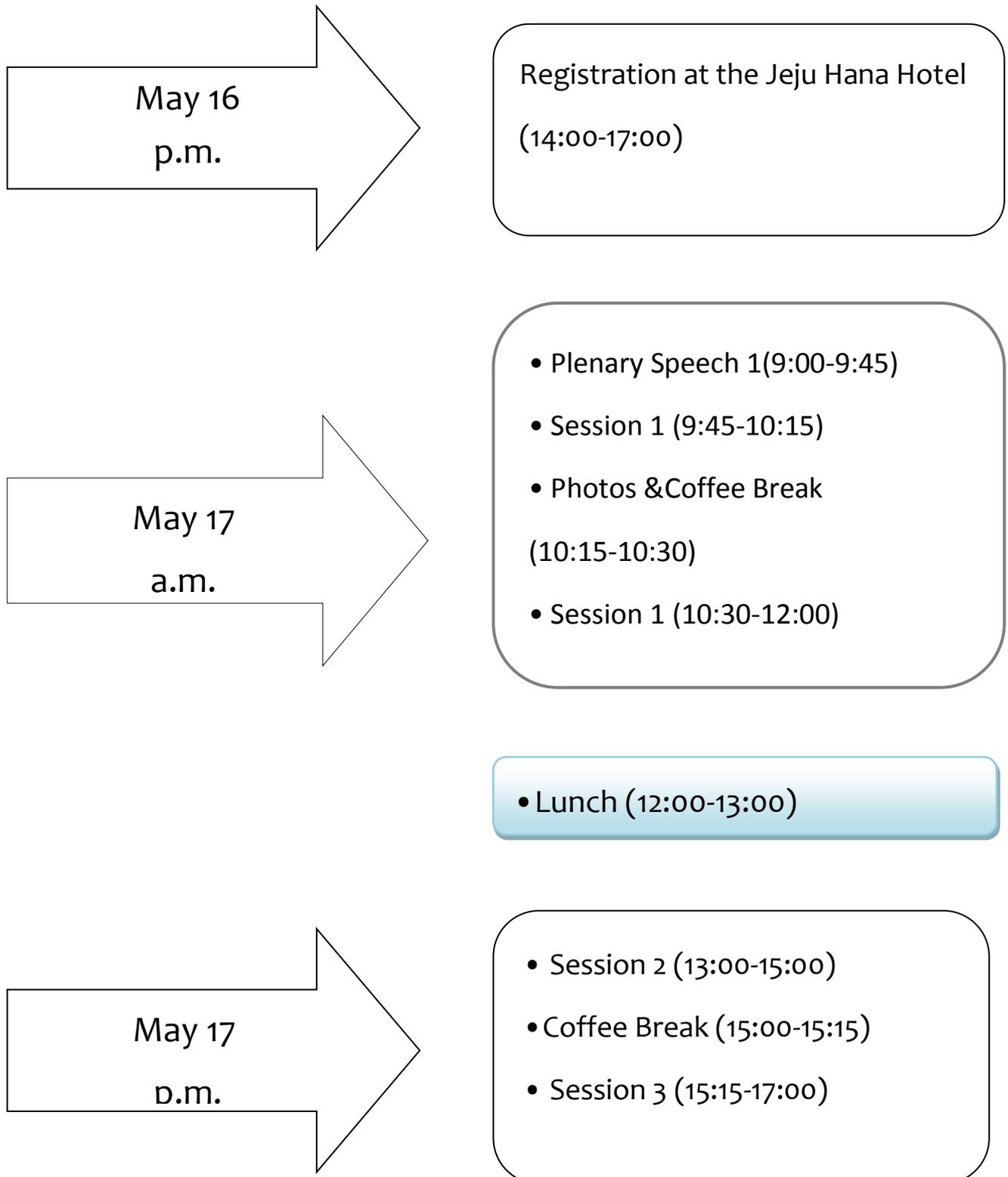
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Venue

Conference venue: Jeju Hana Hotel

Add: 135, Jungmungwangwang danjiro, Seogwipo-city, Jeju-Do, 697-808, Korea



Map to Jeju Hana Hotel for Reference ([Download](#))



2015 BOSI EDU JEJU ISLAND CONFERENCE

ICMDME will be held on Jeju Hana Hotel.

This schedule is subject to change. Please visit

<http://icmdme.org/schedule.html> often for the most current schedule.

ICMDME CONFERENCE SCHEDULE as of 7/5/15

May 16, 2015 (Saturday)

lobby of Jeju Hana Hotel

14:00--17:00	Registration
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May 17, 2015 (Sunday)

Bada Hall on B1 floor

09:00--09:45	Plenary Speech 1 Assoc Prof Dr. JAMALUDDIN MAHMUD
09:45--10:15	Session 1
10:15--10:30	Photos & Coffee Break
10:30--12:00	Session 1
12:00--13:00	Lunch
13:00--15:00	Session 2
15:00--15:15	Coffee Break
15:15--17:00	Session 3

Note:

1. All the participants are strongly advised to arrive before **8:50, May 17, 2015**.
2. Certificate of Participation can be collected at the registration counter.
3. Please copy PPT files of your presentation to the secretary when registration.
4. The organizer doesn't provide accommodation, and we suggest you make an early reservation.
5. If you want to deliver oral presentation but your paper is not in the session list, please contact us by Email: cfp@icmdme.org (for ICMDME 2015)
cfp@cscas.org (for CSCAS 2015)
cfp@icaice.org (for ICAICE 2015)

Instruction about Oral Presentation

Devices Provided by the Conference Organizer:

Laptops

Projectors & Screen

Laser Sticks

Materials Provided by the Presenters:

PowerPoint or PDF files

Duration of each Presentation:

Regular Oral Session: about 8-10 Minutes of Presentation and 5 Minutes of Q&A

Plenary Speech

Plenary Speech 9:00-9:45



ASSOC PROF DR. JAMALUDDIN MAHMUD

Organization: Universiti Teknologi MARA 40450 Shah Alam, Selangor, MALAYSIA

Profile of Keynote Speaker:

Assoc Prof Dr. JAMALUDDIN MAHMUD is a faculty of mechanical engineering in Universiti Teknologi MARA 40450 Shah Alam, Selangor, MALAYSIA.

Assoc Prof Dr. JAMALUDDIN MAHMUD has obtained his PhD degree in Engineering from Cardiff University (2010); M. Sc. in Manufacturing Engineering from International Islamic University Malaysia (2002); B. Eng (Hons) Mechanical from Universiti Teknologi MARA (1996); Diploma in Mechanical Engineering (Manufacturing) from Universiti Teknologi MARA (1994). His major field of interest is Biomechanics (Skin; in vivo experiments; Motion Analysis; Digital Image Correlation DIC); Finite Element Method (i-FEM; Structural Analysis; Pressure vessels; Nastran, ANSYS); Mechanics of Composite Materials (FE programming, Failure Theories).

Assoc Prof Dr. JAMALUDDIN MAHMUD has published 20 Journals, 50 Conference papers, 21 grants amounting to more than RM800k.

Session List

Session1

May 17, 2015 (09:45-10:15)

1-Paper ID: 5 - ICMDME2015

Title: Mechanical property of internal meshing rotary compressor

Authors: A. L. Huang, Y.L. Jiang, Y. Wang

Abstract: The internal-meshing rotary mechanism is widely used in the oil pumps and cyclonical pin wheels application. The working principle of the internal meshing rotary compressor is very different with the current institutions applications. While the mechanical property method of the internal meshing rotary pump can't be entirely and directly used in the rotary compressor because of the different working principles. In order to simplify the study of the internal-meshing rotary compressors, the forces acted on the inner and outer gears are computed. The gas force and torque related to the rotating angle are derived, and the result shows that the internal meshing rotary compressor's mechanical parameters vary periodically and the period is $2\pi/Z_2$ and this type of compressor has perfect mechanical property compared with other compressors.

2-Paper ID: 11 - ICMDME2015

Title: Dynamic Analysis for Rotors of a Twin-screw Compressor with Gas-induced Cyclic Loads

Authors: Yu-Ren Wu, Van-The Tran, Po-Hua Hsu

Abstract: The effects of dynamic forces and elastic contacts in a pair of intermeshing rotors with the gas-induced cyclic loads based on the multibody dynamics simulation have not investigated yet. The comparison of numerical spectra of time and frequency domains of acceleration with the experimental noise spectrum of an oil-injected twin-screw compressor has not also considered. Therefore, this study proposes a new strategy, which combines the fluctuating torques and forces induced by cyclic gas pressure on the screw rotors to numerically predict vibration response in an oil-injected twin-screw compressor.

3-Paper ID: 20 - ICMDME2015

Title: Patient-Driven Hand Exoskeleton based robotic with Active Control System for Early Post Stroke Rehabilitation

Authors: Mohd Nor Azmi Bin Ab. Patar, Takashi Komeda, Low Cheng Yee, Jamaluddin Mahmud

Abstract: The development of a robotic exoskeleton to restore and rehab, hand and finger function is highly competitive nowadays. The robotic exoskeleton is an active actuated mechanism implemented in rehabilitation system, in which each finger attached to an instrumented lead screw mechanism allowing force and position control, according to the normal human setting. The robotic device is a direct driven actuated based on ergonomics measurements, capable to assist in flexion and extension motion. As an adaptation mechanism, it's also compatible with various sizes and shapes of anthropometric human's finger. The integration of DC servo motor and lead screw mechanism were the main features of the interface, which allows independent motion of the five fingers with small and lightweight actuators. The device is easily transportable, efficient safety performance, user friendly and offer multiple modes of training potentials. This paper presents the measurements implemented in the system to determine the requirements for finger and hand rehabilitation device, the design and characteristic of the whole system.

4-Paper ID: D204 - ICMDME2015

Title: Knowledge push technology for complex mechatronic products design based on ontology and variable precision rough set

Authors: Falin Wang, Yu Guo, Wenhe Liao, Xiao Huang

Abstract: In this paper, we present a new knowledge push technology for complex mechatronic products design based on ontology and variable precision rough set (VPRS). Ontology can explicitly represent knowledge semantics and let designers exchange knowledge about design and the product development process; while using the knowledge reduction method based on the VPRS method, the design knowledge repository is simplified and design rules also be distilled from the reduct design knowledge repository. On the basis of the above approach, multiple designers can efficiently share design knowledge and can obtain appropriate design knowledge during all design processes. Finally, a case is employed to validate the proposed method of this paper.



10:15-10:30

Photo and Coffee Break

Session1

May 17, 2015 (10:30-12:00)

5-Paper ID: D225 - ICMDME2015

Title: Catalytic hydrogenation of oil sand's natural bitumen

Authors: Ye. Tileuberdi, Ye. Ongarbayev, Ye. Imanbayev,
Z. Mansurov, B. Tuleutaev, F. Behrendt, I. Schneider, K. Khasseinov

Abstract: In the paper catalytic hydrogenation of natural bitumen (NB) of Kazakhstan oil sands were investigated. The process provided under 350 bar of H₂ pressure and a temperature of 430 °C. At the experiment activated carbon supported catalyst was used. It has 699.807 m²/g of surface area and 0.0635 nm of medium pore size. In the processes the yield of hydrogenated natural bitumen was 91%, including 1st fraction is 13.12 wt.%; yield of 2nd fraction increased, that the temperature range from 216 to 316 °C formed in amount of 45.68 wt.%; vacuum residue of the distillation takes the 41.20 wt.% in natural bitumen.

6-Paper ID: D226 - ICMDME2015

Title: Development of A Cloud Based Remote Mobile Monitoring and Control System for Manufacturing

Authors: Albert W. L. Yao, R. T. Lin

Abstract: The purpose of this study is to develop a remote mobile monitoring and control system for manufacturing factory by using cloud computing and information and communication (ICT) technologies. In conjunction with the cloud and ICT technologies and mobile devices, modern manufacturing systems can be integrated to promote competitive strength to transmit the information and control commands toward the remote monitoring systems instantly via mobile devices. In such a way, this remote system could enhance the efficiency of information flow and the competitive strength and add unknown value to industries. This study adopts the cloud and ICT technologies as the main communication media to develop a remote monitoring and control system with smart mobile devices. The results of this study show the successful integration of the intelligent mobile devices and cloud networks for manufacturing system.

7-Paper ID: D227 - ICMDME2015

Title: Duty control effect during crankcase flow in automobile ECV at its crankcase pressure port

Authors: M. I. Mahmud, H. M. Cho, H. S. Seo, W. W. Hai, K. Sarker

Abstract: Electromagnetic control valve; widely known as ECV, is one of the important components used in variable displacement type compressor for air conditioning control system. It controls the compressor operation on the basis of pulse width modulation (PWM) technique that used to encode the information for transmission. PWM technique allows the control of the power supplied from an external controller to the electrical devices, especially to inertial loads. Different pressure ports in ECV, basically acts as the connecting passages through the ECV for air/refrigerant flow functions. Supply of current and duty control is an important issue that highly concerns to the crankcase flow (P_c flow) through the crankcase pressure port of the ECV. In this research paper, effect of duty control is investigated during the P_c flow at the crankcase pressure port of ECV.

8-Paper ID: D229 - ICMDME2015

Title: Numerical analysis and characteristics of variable displacement swash plate type compressor

Authors: H. S. Seo , H. M. Cho, M. I. Mahmud, W. W. Hai, K. Sarker

Abstract: Variable swash plate compressors recently have been used to improve fuel efficiency and SCM 435 or UNS C67300 were used as the material to manufacture them. As a result of structure analysis through static analysis that used ANSYS, SCM 435 currently being used was found structurally safe as it has that maximum stress is within the allowable range of their material property. Therefore, UNS C67300 was found to generate better fuel efficiency than the existing SCM 435 through structure analysis for automotive variable swash plate air conditioning compressor.

9-Paper ID: D245 - ICMDME2015

Title: Preparation of S960QC steel specimens for fatigue testing: Effect of machining and post-treatments on surface residual stress

Authors: M. Dabiri, T. Skriko, T. Björk

Abstract: The effects of machining parameters and several post-treatments on surface residual stress of round shaped specimens made of ultra-high-strength steel S960QC for fatigue testing have been investigated. Different machining parameters have been used for making the specimens and heat treatment, polishing and acid treatment have been performed to eliminate the surface residual stresses which were introduced to specimens by manufacturing process. Heat treatment proved to be the most effective method to reduce residual stresses although it did not relieve all of the high tensile residual stresses caused by machining. Turning parameters and material properties of S960QC seemed to be very essential factors and their combined effect often leads to high tensile residual stress state on the surface. Consequently, this should be taken into consideration when performing comprehensive material testing under fatigue loading, especially in high-cycle regime.

12:00-13:00

Lunch

Session 2**May 17, 2015 (13:00-15:00)****1-Paper ID:** 13 - CSCAS2015**Title:** Cloudlet Scheduling with Particle Swarm Optimization**Authors:** Hussein S. Al-Olimat, Mansoor Alam, Robert Green and Jong Kwan Lee

Abstract: Cloud computing is a particularly interesting and truly complex concept of providing services over networks on demand. Many tools have previously been created to simulate the work of the clouds, such as CloudSim. The main use of these tools is evaluation and testing of architectures and services before deployment on network centers and hosts in order to avoid any potential failures or inconveniences. The benefits of using the pay-per-use clouds may be affected by underutilization of the already reserved resources, so the maximization of system utilization while simultaneously minimizing makespan is of great interest to cloud providers wishing to reduce costs. To minimize makespan and increase resource utilization, a hybrid of particle swarm optimization and simulated annealing is implemented inside of CloudSim to advance the work of the already implemented simple broker. The new method maximizes the resource utilization and minimizes the makespan.

2-Paper ID: 14 - CSCAS2015**Title:** An Improved Algorithm for Querying Encrypted Data in the Cloud**Authors:** Samraddhi Shastri, Ray Kresman and Jong Kwan Lee

Abstract: Organizations have begun outsourcing management of their data to third party cloud service providers after the introduction of Database as a Service (DAS) model. A cloud database is a database that typically runs on a cloud computing platform, such as Amazon EC2, GoGrid, Salesforce and Rackspace. But outsourcing the data raises concerns over privacy. A typical solution is to store databases in encrypted form on the remote server. Queried records are downloaded from the server and decrypted for further processing. Bucketization is one technique for executing queries over encrypted data on a DAS server.

This paper is an extension to work done by other researchers [1-4]. Query Optimal

Bucketization (QOB) algorithm [1-2] divides the server data into buckets subject to an optimality constraint. In an earlier paper [3], the authors proposed Binary Query Bucketization (BQB) to improve the search time for bucketized datasets and reduce the number of records that are processed by QOB. In this paper, we propose a Parallel Binary Query Bucketization (PBQB) algorithm to query records located in the DAS. It integrates parallel search [4] and BQB. Parallel search divides the search workload into chunks with each thread/processor working on a chunk. Simulation is used to assess the numerical performance of PBQB. It is shown that the proposed algorithm outperforms BQB.

3-Paper ID: 17 - CSCAS2015

Title: Entropy measures for dual hesitant fuzzy information

Authors: Na Zhao and Zeshui Xu

Abstract: In reality, there often exist some situations with high degree of uncertainty where a decision organization consisting of several experts is not very sure about a value, but hesitant among several possible values when providing the membership degree or non-membership degree of an element to a set. In such cases, dual hesitant fuzzy sets are usually utilized to represent the assessments of the decision organization. Since entropy is a very important tool to measure the uncertainty of information, this paper investigates the entropy models on dual hesitant fuzzy information. Firstly, we introduce some axiomatic requirements that a dual hesitant fuzzy entropy measure should satisfy. Then we discuss the construction of dual hesitant fuzzy entropy measures and present several entropy formulas with the help of some simple functions. At length, an illustrative example is given to validate the practicality and effectiveness of the developed entropy measures.

4-Paper ID: 24 - CSCAS2015

Title: Block Combination Selection Scheme for Neighbor Discovery Protocol

Authors: Woosik Lee, Sangil Choi, Namgi Kim¹, Jong-HoonYoun, Dreizan Moore

Abstract: A neighbor discovery protocol (NDP) is one of the critical research subjects in wireless sensor networks (WSNs) for efficient energy management of sensor nodes. A block design concept can be applied to find a neighbor discovery schedule that guarantees at least one common active slot between any pair of sensor nodes.

However, the block design-based solutions in the literature are not flexible enough because, due to the lack of a general block design scheme, only a limited set of block designs is available for some duty cycles. In this paper, a new approach for the block construction that can easily generate a set of neighbor discovery schedules with a diverse set of duty cycles is introduced. Moreover, we propose a block combination selection scheme (BCS) to choose a near-optimal block combination among the set of candidate schedules. The BCS algorithm first generates set of the candidate block combinations whose duty cycle is similar to the desired duty cycle. Then, from the set of candidates, BCS picks a block combination which has the minimum duty cycle and latency product. In this simulation study, we evaluate the performance of the BCS algorithm and compare it to the performance of other NDPs, such as Random, U-Connect, Disco, and Quorum with a target duty cycle. According to our simulation results, the BCS algorithm always picks the best block combination from the set. If the desired duty cycle is 1%, the block combination selected by BCS performs up to 56.29% better than other NDPs in terms of worst-case latency. In terms of energy consumption, the BCS algorithm performs is 58.8% better than other NDPs.

5-Paper ID: 25 - CSCAS2015

Title: A Deep Detection Scheme against Pollution Attacks in Wireless Inter-flow Network Coding

Authors: Tao Shang, Fuhua Huang, Tianli Peng, Jianwei Liu

Abstract: Wireless inter-flow network coding can improve the performance of multi-source unicast communication in multi-hop wireless networks. However, it encounters with serious security threat of pollution attack. In this paper, by combining signature and arbitration in wireless inter-flow network coding, we propose a deep detection scheme to locate malicious nodes after detecting pollution attacks. Firstly, we design a digital signature scheme which is uncorrelated with field size to detect pollution attacks and locate malicious nodes within one hop. Secondly, we design an arbitration scheme based on trusted node to solve the hard problem of locating malicious nodes beyond one hop, which results from the coding operation of inter-flow network coding. Analysis results indicate that the detection scheme is able to defend against all four types of pollution attacks thoroughly with better performance.

6-Paper ID: 33 - CSCAS2015

Title: Events processing in the new DAQ of the COMPASS experiment

Authors: J. Novy, M. Bodlak, V. Jary, M. Virius, S. Huber, I. Konorov and D. Levit

Abstract: This paper describes the route of events through both hardware and software parts of the data acquisition system (DAQ) of the COMPASS experiment at CERN which implements FPGA based event-building. Data quality control is important part of any DAQ. During development of the COMPASS DAQ, a great emphasis was put on ability to recover from errors coming from frontend electronics and on possibility to easily identify origin of errors. Many tests are performed and additional headers are added to data stream by hardware. These headers are later analyzed by software. System was tested for the first time during run in the end of year 2014. Run was successful, but further improvements are planned.

7-Paper ID: 35 - CSCAS2015

Title: Wearable Sensor System to Measure Velocity Adaptive Variability for Continuous Human Mobility Monitoring

Authors: Ik-Hyun Youn, Jong-Hoon Youn and Abhilash Patlolla

Abstract: Variability of human mobility has become an important identifier for the assessment of human motor performance. For example, abnormally increased variability during movement has shown to correlate with higher falling risk. Various gait parameters, such as step length, stride time, and joint angle velocity have been studied to reveal the link between variability and movement impairment under the hospital or laboratory environments. Although the accuracy of the measurements with the laboratory equipment is relatively high and reliable, spatiotemporal limitation and lack of representativeness of ordinary mobility characteristics of a subject have been major challenges of previous approaches. This study proposes the velocity adaptive variability parameter to overcome the listed limitations. Among several major factors that affect level of variability, such as kinematic, pathological, and physiological changes, the parameter specifically absorbs the impact of varied walking speeds to get an instinct variability signature from the same subject regardless of walking speed. Since we utilize a single inertial sensor to measure variability of the subject, the approach will enable us to continuously monitor mobility-related problems in a free-living environment. The proof of concept experiment has shown practical advantages of our approach, and we

also expect that the adaptive variability can be applied to future continuous mobility monitoring research.

8-Paper ID: 38 - CSCAS2015

Title: The planar coupled-fed multiband antenna for Mobile Handset application

Authors: Wei-Chieh Chang and Chia-Hao Ku

Abstract: The planar multiband monopole antenna with a coupled shorted strip and a main antenna suited to smart phone applications is proposed in the paper. The antenna occupies 52.5×15 mm² and printed on a single layer 0.8mm-thick FR4 substrate. By properly designing the dimensions of the antenna and tuning a coupling gap, it can be excited successfully multiple resonances covering our desired frequency bands. The measured results show that the antenna with enough impedance bandwidths ranged from 684-1142 MHz and 1618-2935 MHz, based on 6 dB return loss. In addition, the antenna has good radiation properties including nearly omni-directional radiation patterns in the horizontal planes, efficiencies varied from 54 - 95% and gains from 1 - 4.2 dBi, respectively. Thus, it can fully covers ten-bands LTE-700/2300/2500, GSM-850/900, DCS-1800, PCS-1900, UMTS-2000, WiMAX-2300, WLAN-2400. It is suitable for smart handset applications.

9-Paper ID: 39 - CSCAS2015

Title: Planar Coupled-Fed Monopole Antenna for Nine-Band LTE/WWAN/GPS Mobile Handset Application

Authors: Li-Hua Chou and Chia-Hao Ku

Abstract: In this paper, a planar coupled-fed monopole antenna with nine-band LTE/WWAN (LTE700/2300/2500/GSM850/900/1800/1900/UMTS) operation for mobile handset device application is proposed. It simply consists of a offset T-shaped driven strip and a capacitive loaded coupled radiating structure, which occupies a small PCB area of $60(W) \times 15(L)$ mm². This antenna, which is printed on a 0.8 mm thick FR4 substrate and fed by a 50- Ω coaxial cable, can provide two wide operating bandwidths covering 672-1228 MHz and 1394-2876 MHz for LTE/WWAN communication systems. Also, a SEMCAD software is applied in evaluating SAR values. A prototype of the proposed antenna is fabricated, tested and analyzed. From the measurement results, nearly omnidirectional coverage and stable gain variation across the desired LTE/WWAN bands can be obtained with the antenna.



15:00-15:15	Coffee Break
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Session 3

May 17, 2015 (15:15-17:00)

1-Paper ID: 40 - CSCAS2015

Title: Fast estimation for the long data chain by the spring force model

Authors: Miao Beibei and Jin Xue-bo

Abstract: It is very important to carry out a fast estimation method for long data chain due to the online purpose or the requirement of low compute cost. This paper combines the motion characteristics with the Kalman estimate algorithm to achieve this goal. Measurements are determined according the accelerations of the moving objects so that fulfil the estimation by an irregularly sampling concept. Thus the spring force model is provided to select the measurement for estimation by finding the relation between the acceleration and the next estimation data. The simulate results show that our spring force model can carry out fast estimation with good tracking performance.

2-Paper ID: 42 - CSCAS2015

Title: A Novel Hierarchical Detection Methodfor Enhancing Anomaly Detection Efficiency

Authors: Eunhye Kim and Sehun Kim

Abstract: Improving detection accuracy and efficiency is crucial to the effectiveness of

an intrusion detection system. In this paper, a novel intrusion detection system based on hierarchical approach that integrates a Random Forest based misuse detection model and a Self-Organizing Map based anomaly detection model is proposed for improving detection rates with low computational cost. In the proposed detection system, two components of removing the known attacks through the misuse detection first and reducing features that are redundant and contribute little to the detection process make it possible to construct the normal profiles precisely and efficiently detect unknown attacks deviated significantly from normal pattern. The proposed system not only achieves a significant detection performance, but also enables fast detection through the hierarchical detection method with a good subset of features that are critical to the improvement of the performance of classifiers.

3-Paper ID: 43 - CSCAS2015**Title:** An Online 3D Printing Portal for General and Medical Fields**Authors:** Muhammad Umair and Wan Seok Kim

Abstract: As 3D printing technology is revolutionizing manufacturing and other industries, many organizations have come up with their online 3D printing service platforms and 3D medical solutions. In this paper we present our own 3D printing portal which allows users to create, buy, sell and print 3D products. The portal also serves as crowd funding and social networking platform for 3D printing community. Moreover our proposed portal also provides 3D printing medical solutions developed by participating organizations in the fields of dentistry, orthopedics, rehabilitation and surgery.

4-Paper ID: S350 - CSCAS2015**Title:** A stochastic model for electron–hole annihilation by tunneling and diffusion based on a nonlinear Smoluchowski equations**Authors:** K.K. Sabelfeld, A.I. Levykin, and A.E. Kireeva

Abstract: Based on a stochastic algorithm for simulation of annihilation of spatially separate electrons and holes in a disordered semiconductor, we present numerical results for the photon flux and luminescence in semiconductors. The model is based on the spatially inhomogeneous, nonlinear Smoluchowski equations with random initial distribution density. In the talk we focus on the segregation effect which we have

found under certain reaction conditions.

5-Paper ID: S352 – CSCAS2015

Title: An Exploratory Study of the Taxonomy of Sustainability in Manufacturing Firms

Authors: Paul Hong, James Jungbae Roh and Ma Ga (Mark) Yang

Abstract: Although many studies focus on environmental responsibility practices and corporate social responsibility separately, very few empirical studies are available in discussing diverse patterns of how firms implement environmental and corporate social responsibility practices. The study also posits that firms take different implementation approaches of sustainability. Using a global sample of 641 manufacturers, this research identifies five distinct patterns of sustainability implementation.

6-Paper ID: 1 - ICAICE2015

Title: RSTVL: A sound abstract memory model for program static analysis

Authors: Yukun Dong

Abstract: In this paper, a region-based symbolic three-valued logic(RSTVL) is to describe the storage state of a memory object. RSTVL utilizes abstract region to simulate the block of the concrete memory, a symbolic expression to express the value of a memory object, and the interval domain to describe the value of each symbol of symbolic expression, and then various operations for memory objects are mapped to operation about region. As a sound abstract memory model, RSTVL can describe the shape information of data structure in memory and storage state of memory objects for C program, and a variety of associative addressable expressions, including the point-to relations, hierarchical and valued logic relations.

7-Paper ID: 4 - ICAICE2015

Title: Intelligent Coordinate Registration Method for Computer-assisted Surgery

Authors: Xi Wen, Hong Wang, Weiming Zhai

Abstract: In this paper, we propose an intelligent coordinate registration method. This method simplifies and automates the registration procedure between image space coordinates and patient space coordinates with a high accuracy. Compared with paired-point registration, three-dimensional registration can be performed with only

one Navpass model instead of three or more points. The Navpass is a real-world model designed by our group, which can be easily detected in Computed Tomography (CT) images. First, the pose information such as position and orientation of the Navpass is detected automatically on the images by our Dynamic Region Growing (DRG) algorithm. Then, we calculate the registration transformation when the corresponding location in the patient coordinates obtained by electromagnetic tracking device in real time. In the navigation procedure, the method is capable of computing the registration error in real-time during the respiratory cycle and assisting the surgeon to insert needles within the minimal error. When the target registration error is beyond a certain threshold, the registration matrix would be updated automatically. Our method has been tested on a real-world navigation system with a specially designed phantom. Based on the practical and extensive experiments, we conclude that our method can provide fast and accurate registration error, and that it helps reduce the operation time dramatically for the surgeons as well as the patients.

8-Paper ID: 7- ICAICE2015

Title: Combining Attributes and Links: Finding Homepage for Entity Searching

Authors: Junsan Zhang, Haoliang Sun, Qinghua Lu, Aiyan Zhang

Abstract: Web entities contain a wealth of information. Customers would more like to get a list of relevant entities instead of a list of web pages when they submit a query to the search engine. So the research of related entity finding (REF) is a meaningful work. In this paper we investigate the last task of REF: Entity Homepage Finding. In this paper, we propose a combining multi-attributes (five attributes) and links method to identify entity homepage. We focus on how to use the inner information of Wikipedia pages to search entity Homepage. Also we demonstrate how to build the searching model. The experimental results show our method can search entity homepage effectively and improve the results of entity searching.

9-Paper ID: 10- ICAICE2015

Title: IOT-type cloud online real-time multi-car localization and communication system

Authors: Wen-Tsai Sung, Tsung-Hsien Chuang, Jui-Ho Chen, Kuo-Yi Chang

Abstract: This study models instant online networking multi-car positioning and communication system development. This cloud networking online instant multi-car

positioning and communication technology achieves APP Vehicle-to-Vehicle (V2V) communications using 3.5G wireless transmission medium. The message traffic driver data source and information are transmitted through mobile devices such as cell phones, tablets or other mobile devices to interact with other drivers or road service center.

Note: If you would like to deliver oral presentation but your paper is not in the session list, please contact us by Email: cfp@icmdme.org(for ICMDME 2015); cfp@cscas.org(for CSCAS 2015); cfp@icaice.org (for ICAICE 2015) ASAP. Thanks again for all your great attention and kind support to ICMDME 2015 , CSCAS 2015 and ICAICE 2015.

Thank you for all of your contributions!