

2014 IACSIT Hong Kong Conferences

2014 the 3rd International Conference on Advances in Mechanics Engineering
(ICAME 2014)

2014 the 4th International Conference on Computer and Communication Devices
(ICCCD 2014)

International Conference on Industrial and Applied Electronics
(ICIAE 2014)

2014 2nd Journal Conference on Modeling and Optimization
(JCMO 2014)

CONFERENCE SCHEDULE



**Hong Kong
July 28-29, 2014**

**www.icame.org
www.icccd.org
www.iciae.org
www.ijmo.org**

Welcome to IACSIT Conferences in Hong Kong, July28-29, 2014

Dear Distinguished Delegates,

Welcome to the 2014 IACSIT Conferences in Hong Kong. We're confident that over the two days you'll get the theoretical grounding, practical knowledge, and personal contacts that will help you build long-term, profitable and sustainable communication among researchers and practitioners working in a wide variety of scientific areas with a common interest in Advances in Mechanics Engineering & Computer and Communication Devices & Industrial and Applied Electronics & Modeling and Optimization

After more than half a year's preparation, we finally will have those conferences to be held in Hong Kong during July 28-29, 2014.

For the conferences of ICAME 2014 & ICCCD 2014 & ICIAE & IJMO 2014, we had received over 120 submissions, 45 excellent papers were accepted and published finally. Congratulations for those papers.

On behalf of IACSIT organization, I would like to thank all the authors as well as the Program Committee members and reviewers. Their high competence, their enthusiasm, their time and expertise knowledge, enabled us to prepare the high-quality final program and helped to make the conference become a successful event.

Once again, thanks for coming to IACSIT conferences, we are delegate to higher and better international conference experiences. We will sincerely listen to any suggestion and comment; we are looking forward to meeting you next time.



Yours Sincerely,
Sophie Tsang
Director of Conference Department II, IACSIT

ANNOUNCEMENT

*ICAME 2014 conference papers will be published in the Applied Mechanics and Materials Journal (ISSN: 1660-9336). Applied Mechanics and Materials (ISSN: 1660-9336) is Indexed by Elsevier: SCOPUS and EiCompendex (CPX) Cambridge Scientific Abstracts (CSA), Chemical Abstracts (CA), Google and Google Scholar google.com, ISI (ISTP, CPCI, Web of Science), Institution of Electrical Engineers (IEE) etc.

*ICCCD 2014 conference papers will be published in the volume of International Journal of Computer Theory and Engineering (IJCTE), and will be included in the Electronic Journals Library, EBSCO, Engineering & Technology Digital Library, Google Scholar, INSPEC, Ulrich's Periodicals Directory, Crossref, ProQuest, WorldCat, and EI (INSPEC, IET).

*ICIAE 2014 conference papers will be published in the volume of Journal of Automation and Control Engineering (JOACE) (ISSN: 2301-3702), and will be included in the EI (INSPEC, IET), Ulrich's Periodicals Directory, Google Scholar, EBSCO, Engineering & Technology Digital Library and Electronic Journals Digital Library.

*JCMO 2014 conference papers will be published in International Journal of Modeling and Optimization (IJMO ISSN: 2010-023X available at: <http://www.ijmo.org/list-6-1.html>) by IACSIT Press, and distributed at the conference. The journal will be included in the Engineering & Technology Digital Library, ProQuest, Crossref and Google Scholar, EI (Insepc, IET)

*One best presentation will be selected from each session, the best one will be announced and award the certificate at the end of each session.



Instructions for Oral Workshop

Devices Provided by the Conference Organizer:

- ✧ Laptops (with MS-Office & Adobe Reader)
- ✧ Projectors & Screen
- ✧ Laser Sticks

Materials Provided by the Presenters:

- ✧ PowerPoint or PDF files

Duration of each Presentation (Tentatively):

- ✧ Regular Oral Session: about 15 Minutes of Presentation 3 Minutes of Q&A
- ✧ Keynote Speech: 40 Minutes of Presentation including 5 Minutes of Q&A



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Conference Schedule

Day 1, Monday, July28, 2014–Onsite Registration Only

Registration: REGAL ORIENTAL HOTEL (conference Room VII)

13:00 pm -17:00pm

Arrival, Registration and Conferencematerials collection

****Certificate for Participation can be collected at the registration counter****

Day2, Tuesday, July29, 2014–Presentation Day

<p>Morning</p> <p>Venue: <u>Conference Room III</u></p>	09:00am-09:05am	Opening Remarks	
	09:05am-09:50am	<p>Keynote Speech I:</p> <p>Prof. Wei-Hsin Liao The Chinese University of Hong Kong, China</p>	
	09:50am-10:35am	<p>Keynote Speech I:</p> <p>Prof. Shishir Kumar Sahu National Institute of Technology, Rourkela, India</p>	
	10:35am-10:50am	Coffer Break / Plenary Photo	
	10:50am-11:35am	<p>Keynote Speech III:</p> <p>Prof. Chin-Chen Chang Feng Chia University</p>	

	11:35am-12:20pm	Keynote Speech IV: Prof. Sergei Gorlatch University of Muenster, Germany	
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Lunch	12:00pm-13:30pm
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Afternoon ICCCD 2014/JCMO 2014 Venue: <u>Conference Room V</u>	13:00pm-16:30pm Authors' Oral Presentation–Session 1
	15:30pm-15:50pm—Coffer Break
Afternoon ICIAE 2014/ICAME 2014 Venue: <u>Conference Room III</u>	13:00pm-15:30pm Authors' Oral Presentation–Session 2
	15:30pm-15:50pm—Coffer Break
	15:50pm-18:30pm Authors' Oral Presentation–Session 3
	Poster Presentation Session

Dinner	18:00pm-19:30pm
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**Session I–Authors' Oral Presentation
(ICCCD 2014,JCMO 2014)
13:00pm-16:30pm,Conference Room V**

Session Chair:

CQ3005	Application of a k-Ladder Connectivity Algorithm for Clustering of Protein Evolutionary Network <i>ReshmaNibhani, AviSoffer, AhuvaMu'alem, ZeevVolkovich, and ZakhariaFrenkel</i> ORT Braude College, Department of Software Engineering P.O. Box: 78, Karmiel, Israel
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	<p>Abstract—An Evolutionary Network (EN) in formatted protein sequence space is a very large graph representing information about sequence similarity of relatively short protein fragments. This graph can be used for detecting hidden relatedness between proteins, which is highly significant in protein annotation. Effective EN analysis requires an appropriate graph clustering approach. Based on the fact that biological relatedness is strongly dependent on the number of independent graph nodes connections, we develop a network clustering method that is capable to produce quality clusters the members of which have a satisfactory level of relatedness.</p> <p>In this article we describe a new network partitioning method which is based on the k-cycles graph connectivity approach. After formally defining a unique structure, named k-ladder connectivity, we demonstrate that the k-ladder-based algorithm is able to successfully detect the groups of functionally related proteins.</p> <p>To exhibit the quality of the method, we have conducted a set of experiments in which it has been very effective in clustering of EN, as well as the significantly denser protein-protein interaction networks (PPINs). Furthermore, it can be simply adapted for more complicated structures than cycles, as well as applied to other large networks of different types.</p> <p>Index Terms—K-ladder, connectivity algorithm, network clustering, protein evolutionary network, formatted protein sequence space, protein-protein interaction networks.</p>
CQ3002	<p>Simplified Thermo-Mechanical Modelling of Friction Stir Welding with a sequential FE method Hongjun Li and Di Liu Zhejiang Sci-Tech University, Hangzhou, China.</p> <p>Abstract—This paper presents a methodology for modeling the transient thermal and mechanical responses without computing the heat generated by friction or plastic deformation. The externally applied heat source accounts for the heat generated from tool movement. The novel heat source model includes two parts: surface heat flux at the shoulder-workpiece interface and nodal heat generation in the material that should have been displaced by the tool. The heat source algorithm is described through equations and flow charts. This thermal model was shown to predict a temperature history in good agreement with experimentally measured results. The mechanical interaction between the contacting surfaces was modelled with contact elements. However the analysis failed to converge with the contact pairs active. For the analysis without contact pairs, the predicted longitudinal direction stresses matched well with experiment but the transverse direction stresses were significantly different.</p> <p>Index Terms—Finite Element Analysis, Friction Stir Welding, Thermo-mechanical Modeling, Sequential Method</p>
CQ3003	<p>Optimal Solutions to Reduce Medical Waste Chen-Lin Lee and Jin-Cherng Chen Buddhist Dalin Tzu Chi Hospital, Taiwan</p>

	<p>Abstract—Medical waste (MW), from its creation to its final treatment, is currently a topic of great concern to society. Pollution created by MW not only has an adverse effect on human health but also harms the environment. This study developed a basic model premised on sustainable operation and environmental protection. This model provides concrete data for discussion concerning the creation and sources of MW and its harm to the environment. The government must impose fixed-rate “pollution taxes” on polluters to achieve justice. The amount of pollution emitted from various sources was calculated by using mathematical models and contingency plans were implemented for pollution control and pollution reduction to derive methods that can effectively reduce and inhibit pollution. The mathematical models can hopefully satisfy manufacturers, consumers, and the government, enabling the health care industry to achieve sustainable operation and optimized environmental protection.</p> <p>Index Terms—Medical waste (MW), environment, pollution</p>
<p>CQ3004</p>	<p>Predictive Decision Support System for Licensure Examination Performance through Integration of Multiple Regression and PART Classification Models of Data Mining <i>Ivy M. Tarun, Bobby D. Gerardo, and Bartolome T. Tanguilig III</i> Isabela State University, Isabela, Philippines</p> <p>Abstract—Data Mining is the process of discovering knowledge which in turn can be used to predict future trends. On the other hand, Decision Support System is an information system that enables one to analyze data and compile information that will aid in decision making process. This paper presents the integration of Data Mining and Decision Support System in an educational context. Thus, a Predictive Decision Support System for Licensure Examination Performance (PDSS-LEP) is designed that highlights the repeated generation of Multiple Regression model and the integration of another classification model which was derived using PART classification technique. The PDSS-LEP was found beneficial as it provides a good platform for generation of MR model that can be adapted by other institutions because of its model selection procedures and user-oriented interface. It is however suggested that data integration should be enhanced by considering multiple sources of data</p> <p>Index Terms—Data Mining and Decision Support System Integration, LET Performance, Multiple Regression, Predictive Decision Support System</p>
<p>CQ3007</p>	<p>Agricultural Crops Classification Models based on PCA-GA Implementation in Data Mining <i>Geraldin B. Dela Cruz, Bobby D. Gerardo, and Bartolome T. Tanguilig III</i> Arlac College of Agriculture, Philippines</p> <p>Abstract—Extraction of knowledge in agricultural data is a challenging task, from discovering patterns and relationships and interpretation. In order to obtain potentially interesting patterns and relationships from this data, it is therefore essential that a methodology be developed and take advantage of the sets of existing methods and tools available for data mining and knowledge discovery in databases. Data mining is relatively a new approach in the field of agriculture. Accurate</p>

	<p>information in characterizing crops depends on climatic, geographical, biological and other factors. These are very important inputs to generate characterization and prediction models in data mining. In this study, an efficient data mining methodology based on PCA-GA is explored, presented and implemented to characterize agricultural crops. The method draws improvements to classification problems by using Principal Components Analysis (PCA) as a pre processing method and a modified Genetic Algorithm (GA) as the function optimizer. The fitness function in GA is modified accordingly using efficient distance measures. The approach is to assess, the PCA-GA hybrid data mining method, using various agricultural field data sets, generate data mining classification models and establish meaningful relationships. The experimental results show improved classification rates and generated characterization models for agricultural crops. The domain model outcome may have benefits, to agricultural researchers and farmers. These generated classification models can also be utilized and readily incorporated into a decision support system</p> <p>Index Terms—Classification, Data Mining, Genetic Algorithm, k-NN, Principal Component Analysis</p>
CQ3008	<p>An Intelligent Credit Assessment System by Kernel Locality Preserving Projections and Manifold-regularized SVM Models Shian-Chang Huang Department of Business Administration, National Changhua University of Education, Changhua, Taiwan</p> <p>Abstract—Support vector machines (SVM) have been successfully applied in numerous areas of pattern recognitions, and have demonstrated excellent performance. However, traditional SVM does not make efficient use of both labeled training data and unlabeled testing data. Moreover, one usually encounters high dimensional and nonlinear distributed data in classification problems, especially in financial credit rating assessments. They generally degrade the performance of a classifier due to the curse of dimensionality. This study addresses these problems by proposing a novel intelligent system which integrates a kernel locality preserving projection (KLPP) with a data-dependent manifold-regularized SVM. KLPP is employed to gain a perfect approximation of data manifold and simultaneously preserve local within-class geometric structures according to prior class-label information. Empirical results indicate that, compared with other dimensionality reduction methods and conventional classifiers, the hybrid classifier performs best.</p> <p>Index Terms—Credit Rating, Dimensionality Reduction, Kernel Locality Preserving Projections, Subspace Analysis, Semi-supervised SVM</p>
CQ3009	<p>The Conceptual Structure for a Depletion of Global Warming Through Proficient Reforestation in South East Asia Chanchai Vanlisuta PhranakhonRajabhat University, Thailand</p> <p>Abstract—The objective of this paper is to determine the number and species of plants to be planted in order to maximize a profit through an integer linear programming model. In addition, this paper tends to reveal detailed data of a number of carbon equivalent emitted in the country which is about 375,662,000 tons per</p>

	<p>year. This amount is equivalent to 1.0 percent of the total number of carbon equivalent in the World. A large number of organizations therefore collaborate on enhancing forest by growing plants in the natural parks in order to reduce enormous amount of carbon dioxide. However, the forestation method is varied depending upon available plants and social community preference. As a result, the clean mechanism is not fully effective. No research literature in terms of which and how many plants should be grown to reduce certain amount of carbon dioxide is available. Let alone considers a mathematical model to solve this formidable problem. The conceptual idea will be presented in this paper. This framework can be a guideline for the government to promote effective forestation strategy or any party who are interested to maximize carbon credits by growing various plants under certain constraints.</p> <p>Index Terms—Mitigate Carbon, Optimization, Mathematical, Integer Programming</p>
<p>CQ3010</p>	<p>Optimisation Design of a Taguchi-Based Real-Code Genetic Algorithm for Thermal Reducing of Air-Core Linear Brushless Permanent Magnet Motor W.J. Chen, J. R. Lin, D. C. Chen, and F. L. Nian Department of Industrial Education and Technology, National Changhua University of Education, Taiwan</p> <p>Abstract—This study combined the Taguchi method with the genetic algorithm (GA) to analyse the optimal design parameters of the thermal distribution in an air-core linear brushless permanent magnet motor (ALBPMM). First, this study adopted an L18(21×37) orthogonal array to determine the significant factors, including active currents, the length of magnets, pole distance of magnets, air-gap length, and thickness and width of coils. Then, the study uses response surface methodology (RSM) to construct the predictive model. Finally, the optimal combinations of design parameters that involve using real-code GA were obtained and verified by finite element modelling. The simulation results show that the thermal distribution in the optimal design of parameters is 41% more effective than that of any models in which the parameters are not optimised. Therefore, the proposed approach can be used as the basis for designing and predicting the temperature effects of the ALBPMM</p> <p>Index Terms—Taguchi, genetic algorithm, air-core linear brushless permanent magnet motor, response surface methodology</p>
<p>D07</p>	<p>Joint Lifetime and Data Rate Optimization in Wireless Networks Via Decomposition Techniques Jain-Shing Liu Providence University, Taiwan</p> <p>Abstract—Jointly maximizing network lifetime and data rate emerges as a hard task on optimization in wireless networks. For this problem under network coding, we introduce a cross-layer formulation with nonlinear programming model to accommodate routing, scheduling, and stream control from different layers in the network-coded wireless networks. In particular, through Lagrangian theory, we reformulate our programming model to develop a decentralized solution based on primal decomposition and primal-dual algorithmutilizing the structure specific to this joint optimization problem. Experiment results exhibit that the proposed</p>

	<p>solution can approach the optimal balance between the two performance design aims and confirm the possible benefits that can be gained from the programming model via decomposition techniques.</p> <p>Index Terms—Joint Optimization, Wireless Networks, Decomposition Techniques.</p>
D13	<p>Intuitive Projection Display System Supporting the Manipulation of Dual Laser Pens Ching-Sheng Wang, Ding-Jung Chiang, Chien-Liang Chen, and Hsin-Chueh Chen Aletheia University, Taiwan</p> <p>Abstract—The combined use of computers and projectors in delivering multimedia presentations and in teaching is very common. However, the common operating tools used to deliver presentations such as presentation pens or mice either have limited manipulation functionality or are less convenient, and it is difficult to perform functions such as zooming, rotating images, and writing. In addition to allowing users to move freely in space to remotely perform functions, the laser pen manipulation system proposed in this paper can also perform the writing functions of a laser pen. Moreover, the system can also support the simultaneous use of two laser pens to realize a touch mode similar to that of a tablet computer, thus achieving an intuitive projection display manipulation experience.</p> <p>Index Terms—Intuitive, laser pen, laser pointer, projection</p>
D15	<p>ID-Based Non-Interactive Universal Designated Verifier Signature for Privacy-Preserving Applications Han-Yu Lin Department of Computer Science and Engineering, National Taiwan Ocean University, Taiwan</p> <p>Abstract—A Universal Designated Verifier Signature (UDVS) scheme is an ideal mechanism for preventing any signature holder from arbitrarily disseminating the signature, so as to protect the privacy of original signer. Such schemes are suitable for applications like the certificate of medical records and income summary, etc. In this scheme, a signature holder (designator) can generate a designated verifier signature which can only be verified by an intended verifier. Additionally, the verifier cannot transfer his proof to any third party, since he is also capable of simulating a computationally indistinguishable transcript. In this paper, the author proposes a new ID-based non-interactive UDVS scheme based on the assumption of Bilinear Diffie-Hellman Problem (BDHP). To ensure the security of proposed scheme, the requirement of strong unforgeability is formally proved in the random oracle model. Compared with previous works, our mechanism also provides better functionalities.</p> <p>Index Terms—Universal designated verifier signature, bilinear pairings, privacy-preserving, random oracle, public key system.</p>
D21	<p>Web-Oriented Architecture (WOA) Enabled Customer-centric Collaborative Commerce Platform (WCCP) Chuan-Jun Su Yuan Ze University, Taiwan</p> <p>Abstract—Traditional Service-Oriented Architecture (SOA) has consistently</p>

	<p>promised more than it has delivered, but Web-Oriented Architecture (WOA) promises to deliver the robust outcomes formerly expected of SOA. WOA extends SOA to web-based applications. The architecture hides the protocol complexity in the application state and provides simpler methods for the deployment of interoperable web services. However, this pragmatic and effective approach has only been rarely implemented, limiting the body of formal knowledge and support available to enterprises which want to exploit this profoundly useful and simple way of developing interoperable systems.</p> <p>In this paper, we describe the development of a novel customer-centric collaborative commerce platform (WCCP) on WOA in a virtual environment. The classification from the United Nations Standard Products and Services Code (UNSPSC) was adopted to achieve the interoperability between differential enterprises.</p> <p>Index Terms—Collaborative commerce, SOA, UNSPSC, WOA.</p>
<p>D27</p>	<p>Preceding Vehicle Detection and Tracking Method with MVFIR Filter <i>InhwanChoe, Younghak Mo, ChoonkiAhn, and Myotaeg Lim</i> Korea University, South Korea</p> <p>Abstract—Visual object tracking method based on Kalman filter has been widely studied for several decades. Kalman filter is a recursive optimal estimator that provides minimized mean square error of the estimate parameters, if all noises are Gaussian. However, the performance of Kalman filter gets degraded under any incorrect modeling information of the system and numerous noise condition. Whereas, the finite impulse response (FIR) filter has comparative advantages to Kalman filter, because of several properties of FIR filter such as robustness to modeling uncertainty and noise.</p> <p>In order to enhance the performance of visual object tracking, this paper demonstrates a comparative analysis and evaluation of preceding vehicle tracking algorithm, which combines adaptive boost (AdaBoost) algorithm and minimum variance FIR (MVFIR) filter under various challenging road environments. FIR filter gains are derived by minimum variance method for changing road scene. Furthermore, experiment result presents a comparison of vehicle tracking accuracy between the proposed method and Kalman filter based tracking method.</p> <p>Index Terms—AdaBoost, FIR filter, Kalman filter, Visual object tracking.</p>
<p>D29</p>	<p>Performance Investigations of Routing Protocols In Vanet Under IPv4 and IPV6 <i>Mohamed OTMANI, Mohammed FIIHRI and Abdellah EZZATI</i> Faculty of Sciences and Technologies, Morocco</p> <p>Abstract—Recent advances in wireless technologies have given rise to the emergence of vehicular ad hoc networks (VANETs). In such networks, the limited coverage of Wi-Fi and the high mobility of the nodes generate frequent topology changes and network fragmentations. Vehicular Ad-hoc Networks (VANETs) are a special type of Ad-hoc networks. They can be utilized to guarantee road safety, to avoid potential accidents and make new forms of inter-vehicle communications so they will be an important part of the future Intelligent Transportation Systems (ITS). Many studies have been done on the performance evaluation of routing protocols of VANET, but majority of these studies are based on IPv4 That is why It is obligatory to analyze the behavior different routing protocols under different environments, on</p>

the other hand IPv6 provides a much larger address pool with the use of 128-bit addresses: 340 undecillion (3.4×10^{38}), compared to 4.3 billion available in 32-bit IPv4 addresses. This extended address pool not only provides better scalability, but also introduces additional security by making the monitoring and identification of host more difficult for attackers.

In this study two routing protocols of mobile ad hoc network namely AODV, OLSR are tested under IPv6 environment. Performance of these routing protocols is evaluated by using OPNET Modeler 14.5 as simulation tool on the basis of different performance Network Load and Throughput. The objective of this research is to investigate how these routing protocols behave under IPv6 environment and identify which routing protocol performs better.

Index Terms—VANET, AODV, OLSR, IPV4 and IPV6.

**Session II—Authors' Oral Presentation
(ICAME 2014)**

13:00pm-15:30pm, Conference Room III

Session Chair: Prof. M. MOHAMED ABDUL HAFEEZ

KING COLLEGE OF TECHNOLOGY, INDIA

Modified Contour Integrals for Calculation of Stress Intensity Factors for Cracks in Anisotropic FGMs

Jui-Hung Chang and Jun-Yi Jiang
National Central University, Taiwan

E005

Abstract—A numerical method is proposed for calculation of the mixed-mode stress intensity factors at a crack tip in anisotropic functionally graded materials. The method is constructed by developing a pair of modified contour integrals, along with closed form expressions that relate these integrals and the SIFs. Neither a-priori information nor extra auxiliary solutions corresponding to the singular behavior is required for the calculation and so the proposed scheme is applicable for curve cracks of arbitrary shapes in generally anisotropic FGMs.

Index Terms—mixed-mode stress intensity factors, curved cracks, anisotropic FGM, modified contour integrals

In-Process Prediction of Surface Roughness in Grinding Process by Monitoring of Cutting Force Ratio

VichayaThammasing and SomkiatTangjitsitcharoen

Faculty of Engineering, Department of Industrial Engineering, Chulalongkorn University, Thailand

E010

Abstract—The purpose of this research is to develop the models to predict the average surface roughness and the surface roughness during the in-process grinding by monitoring the cutting force ratio. The proposed models are developed based on the experimentally obtained results by employing the exponential function with four factors, which are the spindle speed, the feed rate, the depth of cut, and the cutting force ratio. The experimentally obtained results showed that the dimensionless

	<p>cutting force ratio is usable to predict the surface roughness during the grinding process, which can be calculated and obtained by taking the ratio of the corresponding time records of the cutting force F_y in the spindle speed direction to that of the cutting force F_z in the radial wheel direction. The multiple regression analysis is utilized to calculate the regression coefficients with the use of the least square method at 95% confident level. The experimentally obtained models have been verified by the new cutting tests. It is proved that the developed surface roughness models can be used to predict the in-process surface roughness with the high accuracy of 93.9% for the average surface roughness and 92.8% for the surface roughness.</p> <p>Index Terms—Grinding, Surface roughness, Cutting force ratio, Prediction.</p>
<p>E017</p>	<p>Mechanism-based Numerical Approach to Ductile Fracture in an 2024-T3 Aluminium Alloy Wei JIANG, Yazhi LI, Yixiu SHU, and Masanori KIKUCHI Northwestern Polytechnical University, China</p> <p>Abstract—Ductile fracture of 2024-T3 aluminum alloy has been investigated under tensile and shear loading conditions. In order to predict rupture, a void - based meso - damage constitutive relationship which can deal with both tensile and shear problems is developed and implemented in commercial software ABAQUS. The tensile and shear fracture behaviors including the load - displacement response and crack propagation path, of 2024 - T3 aluminum alloy are analyzed using the proposed approach and compared with experimental data. It is shown that the proposed approach can be used to predict the failure of ductile materials under complex loading conditions.</p> <p>Index Terms—Ductile fracture; Rupture mechanisms; Meso-damage model; Gurson theory</p>
<p>E025</p>	<p>Spectral Sensing of Asbestos according to Concentration in Various Asbestos Containing Materials HosangAhn, Byungkwon Jung, JinChulJoo, and Jae Ro Park Korea Institute of Construction Technology, South Korea</p> <p>Abstract—Asbestos in various building materials were measured by spectral sensor to examine the shift in reflectance wavelength according to asbestos concentration in different materials. Asbestos glove, asbestos soil, asbestos fiber insulation board, slate and bamlite panel were tested under several experimental conditions to alter reflectance intensity at each wavelength to find the optimum condition to detect asbestos selectively from other particulate matters. Chrysotile was found to have specific wavelength range regardless of concentration and type of materials as detected under blue color filter and dyed with refractive index liquid.</p> <p>Index Terms—asbestos sensing, spectral sensor, asbestos concentration, wavelength change</p>
<p>E026</p>	<p>Characterization of Graphene Oxide Thin Film according to heat Treatment Condition for the Selective VOCs Sensing HosangAhn, Byoungkwon Jung, JinChulJoo, and Jae Roh Park Korea Institute of Construction Technology, South Korea</p>

	<p>Abstract—Graphene oxide (GO) thin films were fabricated into thin film sensor for the selective VOCs detection. Different concentrations of GO aqueous solutions (6.2g/L and 5.0 g/L) were tested and thermally treated to obtain the appropriate sensing layer in terms of specific surface area and functional group. For the selectivity, it was assumed that different numbers and types of attached functional group of GO could induce the difference in gas adsorption, which may consequently derive to the selective VOCs detection. FE-SEM, XRD, and FTIR were utilized to characterize crystalline phase and functional group change by heat treatment condition and resistance measurements were followed. We suggest that thermally treated GO thin film sensor can be the alternative approach to achieve the improved selectivity in multiple gas detection by controlling the degree of gas adsorption.</p> <p>Index Terms—VOCs sensing, Graphene oxide, reduced graphene oxide, thermal treatment</p>
<p>E029</p>	<p>Thermal and Morphological Properties of Chitosan Filled Epoxy <i>BrittoSatheesh, Kim Yeow TSHAI, and N. Warrior</i> University of Nottingham Malaysia Campus, Malaysia</p> <p>Abstract—This paper investigates the effects of polysaccharide additive agent on the morphological and thermal properties of thermosetting polymer. The weight percentage (<i>wt%</i>) of Diglycidyl Ether of Bisphenol A (DGEBA) epoxy resin to Hexamethylenediamine (HMDA) hardener were kept constant while a varying <i>wt%</i> of chitosan, ranging from 0 to 10 <i>wt%</i> was introduced. The chitosan filled epoxy hardener mixture was allowed to cure at 40°C for a period of 12 hours. Dynamic Scanning Calorimetry (DSC) and Thermal Gravimetric Analysis (TGA) were conducted on the specimens to analyse the effects of chitosan loading on thermal stability and transition temperature while Atomic Force Microscopy (AFM) was used to investigate the changes to its morphological property. At chitosan loading of 2.5 <i>wt%</i> and below, good dispersion of the additive was observed. Apparent agglomeration and phase separation were formed when chitosan content increases above 7.5 <i>wt%</i>. The formation of bulky chitosan agglomeration was found capable of enhancing the thermal stability of the thermoset polymer. The diamine acted as the co-reactants with DGEBA as well as spacer which decrease the effect of material brittleness due to addition of chitosan.</p> <p>Index Terms—Epoxy, Chitosan, Thermal, Morphology, Polysaccharide.</p>
<p>E034</p>	<p>Simulation Analysis of Designing a New Technique KER Warhead <i>HuijunNing, Hao Wang, Cheng Zhang, and WenjunRuan</i> Nanjing university of science and technology, China</p> <p>Abstract—The major technique of an air-defense warhead is to improve the damage after effect. Therefore, a new Kinetic Energy Rod (KER) warhead named profiled rod warhead is proposed in this paper. The detonation process is simulated by ANSYS/LS-DYNA, and the deployment velocity and initial flight attitude of rod are achieved. Rigid body dynamics equations of rod, which accounts for the influence of air resistance, are set up to predict the flight trajectory of long-distance. The results show that profiled rods are conducted to determine a higher penetrability compared with traditional cylindrical rods, and the profiled rods may provide a better penetration angle</p>

	<p>that still maintains a significant penetrability against projectiles when the rods move off long-distance range.</p> <p>Index Terms—profiled rod; detonate projection; damage effect; flight trajectory</p>
E044	<p>Study of Air-flow and Temperature Distribution in a Small-scale Dryer for Grains Drying <i>Almon Chai , Stefan Kho , and Ha How Ung</i> Swinburne University of Technology Sarawak Campus, Malaysia</p> <p>Abstract—This paper describes the work performed on a small-scale dryer designed to allow agricultural product to be dried by farmers via usage of slanted plates for grains transportation. This work involves the prototype design, computational simulation using ComsolMultiphysics and study of the results. The computational simulation results are plotted in temperature contour-plots based on the prototype modelling and boundary conditions. The results illustrate the difference in opening and closing of grains inlet and also effects of the temperature distribution within the dryer. Air-flow relative humidity is also introduced to allow observation of the drying air-flow on the grains. The simulation results are shown and elaborated here. From the results, it is evident the grains can be dried as the injected heated air-flow is projected onto the plates. It can also be concluded here that farmers may need to close the grains inlet of the dryer to prevent heat loss and non-uniform distribution of heat.</p> <p>Index Terms—Grains, dryer, simulation, temperature.</p>
E045	<p>The Alternatives of Ballast Water System <i>HESHAM ELKADY, HAN DUANFENG, and GAO LIANGGAO</i> Harbin Engineering University, China</p> <p>Abstract—To eliminate the introduction of invasive marine species and the disadvantages of ballast water (BW) treatment systems a new concept in ship design was developed to be alternative of ballast water system. Non-Ballast ships were rarely mentioned in China even they were studied widely worldwide. In this paper, the different types of non-ballast water ship were reviewed, to be classified in order to facilitate the study of such types of vessels and serve as a base for the development.</p> <p>Index Terms—Ballast Water, Ballast water treatment, No ballast, Zero discharge, Continuous flow</p>
E062	<p>The Effects of Laminate Orientation in Resin Infused KenafFibre Reinforced Epoxy Composite <i>Kim Yeow TSHAI, K.C. Wong, W.J. Tan, and A.B. Chai</i> University of Nottingham Malaysia Campus, Malaysia</p> <p>Abstract—Water retted kenaf fibre reinforced epoxy laminates with five distinct fibre orientations, unidirectional, [+30/0/-30], [+45/0/-45], [+60/0/-60] and [90/0]s were produced through resin infusion technique. The fibre weight fraction in each laminate was controlled and the effects of varying orientation in the resulting composite lamina were characterized through tensile and impact properties of the</p>

	<p>specimens. Superior tensile strength and modulus were observed for the unidirectional lamina while the orthogonal lamina [$90/\bar{0}$]s depicted the greatest resistance to impact. Specimen with higher proportion of fibres aligned parallel to the loading direction show greater enhancement in tensile strength while impact property of the lamina was found to be greater with increases in fibre orientation perpendicular to the direction of impact load.</p> <p>Index Terms—Fibre orientation, laminate, kenaf, resin infusion.</p>
E063	<p>Measurements of Surface Roughness in Ultrasonic Assisted Grinding of Ceramic Materials <i>Roman Wdowik, Marek Magdziak, and Janusz Porzycki</i> RZESZOW UNIVERSITY OF TECHNOLOGY, POLAND</p> <p>Abstract—The paper presents the results of investigations regarding surface roughness measurements in ultrasonic assisted grinding of selected ZrO₂ based ceramic material. There are different results, in the area of surface roughness measurements, presented in the literature. The entry data of hybrid machining process (e.g. grinding wheel type, feed, machining strategy or process variant) may influence these results. The analysis of literature encourages to take up the investigations of surface quality in ultrasonic assisted machining. These investigations may be performed for specific ceramic products and technological tasks which are commonly applied in ceramic machining processes. The knowledge about the machining of ceramic materials in different sintering states is very limited. Based on this finding, ultrasonic assisted and conventional machining processes of ZrO₂ based ceramic material in different sintering states were investigated.</p> <p>Index Terms—ultrasonic assisted grinding, surface roughness, ceramic materials, hybrid machining</p>
E1003	<p>Durability performance of concrete containing CFBC fly ash and coal-fired fly ash <i>Maochieh Chi and Ran Huang</i> WuFeng University, Taiwan</p> <p>Abstract—This study presents an investigation into durability performance of concrete with various combinations of circulating fluidized bed combustion (CFBC) fly ash and coal-fired fly ash. All cylindrical specimens with the same binder content of 420 kg/m³ and water/binder ratio of 0.5 were cast and cured in the saturated limewater. Permeability test, sulfate attack resistance test, rapid chloride ion penetration test (RCPT) and carbonization test were performed. Test results demonstrate that the adding of CFBC fly ash and coal-fired fly ash would reduce the water permeability and chloride ions penetration, and increase the sulfate attack resistance, but an increase in carbonization depth. The carbonization depth increases with an increasing contents of CFBC fly ash and coal-fired fly ash. There exists a negative relationship between compressive strength and carbonization rate. Based on the test results, CFBC fly ash and coal-fired fly ash can be considered as cement replacement materials and employed in concrete.</p> <p>Index Terms—Durability, CFBC fly ash, coal-fired fly ash, carbonation depth</p>

**Session III—Authors' Oral Presentation
(ICAME 2014, ICIAE 2014)
15:50pm-18:30pm, Conference Room III**

**Session Chair: Dr. Eng Hwa Yap,
University College London, Australia**

E011	<p>Development of Computerized Preventive Maintenance Management System with Failure Mode and Effect Analysis for CNC Machine <i>Em-ardchayaRungsa and SomkiatTangjitsitcharoen</i> Faculty of Engineering, Department of Industrial Engineering, Chulalongkorn University, Thailand</p> <p>Abstract—In order to realize the intelligent maintenance management system, this paper presents a development of computerized preventive maintenance management system (CPMMS) to manage and record the maintenance information in the database for the CNC machines. The failure mode and effect analysis (FMEA) has been utilized to deal with the computerized preventive maintenance management system in this research. The FMEA is analyzed to determine the risk priority number (RPN) of the CNC machines in order to set the preventive maintenance plan as a standard maintenance. The developed program can generate the next schedule of the preventive maintenance plan automatically, which increases the efficiency and decreases the breakdown. It has been proved that the proposed and developed CPMMS with FMEA program can improve the overall equipment effectiveness (OEE). The RPN has been reduced due to a decrease in the severity and the occurrence.</p> <p>Index Terms—Computerized preventive maintenance management, risk priority number, failure mode and effect analysis, CNC machine.</p>
E020	<p>Defective Reduction in an In-House Recycle Process of Hard Disk Drive Media <i>KeeratipanDamrongserree and WipaweeTharmmaphornphilas</i> Chulalongkorn University, Thailand</p> <p>Abstract—This paper aims to reduce defectives in an in-house recycle process of hard disk drive media. The Six Sigma approach is applied to find out the factors which affect the sunray defect statistically and to obtain the optimal setting of each factor. Currently, defective rate is 23% and a sunray defect on media is identified as a major problem with 9.64% defective rate. It is found that a minimal defective rate of sunray defect is achieved with the setting of the load of rubber pusher at 106.5 gram, the spindle speed during tape move up at 2,500 rpm and the traverse speed of tape at 70 cm/min. Finally, the process with the optimal machine settings is implemented along with applying work instruction and training. It can reduce the defective rate from 9.64% to 3.2%.</p> <p>Index Terms—Sunray Defect, Recycle Process, Hard Disk Drive Media, Six Sigma Approach.</p>
E022	<p>A Compact Low Cost Wearable Sensor System for Quantitative Gait Measurement <i>Ming-Gui Tan, Cheng-Boon Leong, Jee-Hou Ho, Hui-Ting Goh, and Hoon-Kiat Ng</i> The University of Nottingham Malaysia Campus, Malaysia</p>

	<p>Abstract—The demand for quantitative gait analysis increases due to increasing number of neurological disorder patients. Conventional gait analysis tools such as 3D motion capture systems are relatively expensive. Therefore, there is a need to develop a low cost sensor system to obtain the spatial temporal gait parameters without compromising too much on the accuracy. This paper describes the development of a wearable low cost sensor system which consists of relatively less sensing elements with 2 accelerometers, 4 force sensitive resistors (FSR) and 2 EMG electrodes. The sensor output was validated by a vision system and the relative error was less than 5% for most of the gait parameters measured.</p> <p>Index Terms—Portable sensor system, gait analysis, accelerometer, FSR, EMG</p>
<p>E030</p>	<p>System Dynamics of Electric Cars (EC) Usage and Support Infrastructure in Malaysia <i>Sze Wei LIM , Khin Fai CHEN, and EngHwa YAP</i> University of Nottingham Malaysia Campus, Malaysia</p> <p>Abstract—Using system dynamics, this paper investigates the feasibility of implementing an integrated infrastructure for Electric Cars (EC) in Malaysia by understanding the intrinsic relationships, compounded effects and dynamics of policies, public knowledge, technology maturity, private investment and network of support infrastructure required upon the its deployment of EC in Malaysia. All key enablers are assumed to have a feedback relationship with the demand and the scale of overall EC sold. From the results, it can be concluded that governmental subsidies, environmental policies and effective marketing strategies are needed to support the EC market along technological advancements such as improvement in the EC's battery life.</p> <p>Index Terms—System Dynamics, Electric Cars, Support Infrastructure, Policy, Malaysia</p>
<p>E032</p>	<p>Accounting Information Systems Development (Subsystems: Production Process in XYZ Ltd) <i>Yohannes Kurniawan and Siti Elda Hiererra</i> Bina Nusantara University, Indonesia</p> <p>Abstract—The aims of this research are to identify and to analyze the need of accounting information systems, including the processes, procedures, and also the documents which related to the production process in XYZ. Next step, We conduct designing accounting information systems which is useful to support current business process. Analysis and design the systems that we conducted, related to the organizational structure and current business processes. Its analysis and design systems based on the theories of accounting information systems, production process and also internal control. The result achieved is an application model, which can assist production process activities, especially in documenting and storing data transaction and also generating reports in accordance with organization's needs. The conclusion is the implementation of the accounting information systems application which can improve the XYZ's systems performance and the current business processes. Therefore, it can obtain the required information in a timely and accurately.</p>

	<p>Index Terms—Production Process, Internal Control, Systems</p>
E039	<p>Coordinate Measurements of Geometrically Complex Ceramic Parts Marek Magdziak and Roman Wdowik Rzeszow University of Technology, Poland</p> <p>Abstract—The article presents the results of numerical and experimental investigations concerning contact coordinate measurements of complex ceramic parts made of Al₂O₃ and ZrO₂ based ceramic materials in different states. The investigated parts were manufactured by using two machining processes: ultrasonic assisted grinding and conventional grinding. The results of investigations may be used in order to improve the manufacturing process of geometrically complex ceramic parts.</p> <p>Index Terms—coordinate measuring technique, ultrasonic assisted grinding, ceramic materials</p>
E052	<p>Temperature Distribution of Hot Air Flow in Heating Zone for Drying Application NawadeeSrisiriwat and ChananchaiWutthithanyawat Pathumwan Institute of Technology, Thailand</p> <p>Abstract—The temperature distribution of hot air flow in heating zone of a rectangular duct has been investigated for drying application. The experimental set-up consists of a heater and a fan to generate the hot air flow in the range of temperature from 40 to 100°C and the range of air velocity between 1.20 and 1.57 m/s. An increase of the heater power supply increases the hot air temperature in the heating zone while an increase of air velocity forced by fan decreases the initial temperature at the same power supply provided to generate the hot air flow. The temperature distribution shows that the hot air temperature after transferring through air duct decreases with an increase of the length of the rectangular duct. These results are very important for the air flow temperature and velocity control strategy to apply for heating zone design in the drying process.</p> <p>Index Terms—Drying, Heating zone, Hot air flow, Rectangular duct, Temperature distribution.</p>
E053	<p>Internal Model Control Design for Autothermal Reforming System ChananchaiWutthithanyawat and NawadeeSrisiriwat Pathumwan Institute of Technology, Thailand</p> <p>Abstract—This paper focuses on the control system design for a process of autothermal reforming (ATR) of ethanol. The targeted application is within an on-board fuel processor of ATR operating at the adiabatic reaction temperature for hydrogen production. An internal model control (IMC) method is designed for controlling the adiabatic reaction temperature of ATR reactor by manipulating the input air flow rate. Two strategies of controller design with and without the feed temperature control of the preheater unit are proposed in order to determine the suitable controller system as the surrounding temperature is a major disturbance for cold weather. Theoretical analysis demonstrates that IMC strategy can achieve desired performance. Two loops of control system of the ATR process combined with the feed temperature control can compensate the surrounding temperature better</p>

	<p>than without the feed temperature control.</p> <p>Index Terms—Autothermal reforming, Ethanol, Hydrogen production, Internal Model Control, IMC.</p>
E060	<p>A Design of Launching Pattern for Final Inspection of Assembled Cars in Mixed Model Assembly Line <i>P. Vinitorn and SuksanPrombanpong</i> King Mongkut's University of Technology Thonburi, Thailand</p> <p>Abstract—The objective of this paper is aimed at determining the sequential pattern of a newly mixed -models assembled cars entering into the final inspection lines so that the required production rate of each model can be obtained as specified. The inspection lines are consisted of three parallel conveyor lines and each line is designed to be able to inspect any car models. One can imagine that each model with different inspection details will definitely consume different lead time to complete the job. As a result, the model with short leadtime can be finished faster than one with longer lead time. Thus, by the end of each inspection hour, it is difficult to maintain the exact production rate of each product. The unfinished model will become a back order and will be completed in the next hour and therefore the rest of the schedule will be affected. Without knowing of the fixed rate launching algorithm, the exact production rate of each model for each working hour can not be met.</p> <p>Index Terms—Mixed model assembly line (MMAL), Car sequencing, Fixed rate launching.</p>
E1001	<p>Investigation of Machining Parameters for Burr Minimization in CNC Turning of Brass using RSM And GA <i>R. Ravikumar and M.Mohamed Abdul Hafeez</i> KING COLLEGE OF TECHNOLOGY, INDIA</p> <p>Abstract—CNC turning is one among the metal cutting process in which quality of the finished product depends mainly upon the machining parameters such as feed, speed, depth of cut, type of coolant used, types of inserts used etc. Similarly the work piece material plays an important role in metal cutting process. This study involves in indentifying the optimized parameters in CNC turning of Brass. To identify and measure the formation of burrs in the turned samples, are examined under scanning electron microscope (SEM). The optimization techniques used in this study are Response surface methodology, and Genetic algorithm. Several comparisons were made between cutting parameters with surface roughness. These optimization techniques are very helpful in indentifying the optimized control factors with high level of accuracy.</p> <p>Index Terms—Design of Experiments (DOE), Turning, Scanning Electron Microscope (SEM), Response Surface Methodology (RSM), Genetic Algorithm (GA).</p>
AE004	<p>Design and Implementation of a Fault diagnosis and Fail safe on an Electronic Parking System <i>Donghoon Ban</i> DGIST, Korea</p>

	<p>Abstract—This paper is intended to present the design and implementation of a fault diagnostic and fail safe for an electronic parking brake system. The fault diagnostic function includes an input signal, output signal, and fault diagnostic using a microprocessor. The fault diagnostic function determines faults in the main microprocessor. The EPB has the function of the microprocessor and the permissible range of system control. The input signal detects faults using the voltage of the switch pole, the output signal defines faults using the current level of the motor. The microprocessor judges failure using internal software. And a sub microprocessor monitors the status of the main microprocessor using periodic communication between the main microprocessor and the sub microprocessor. Also, the microprocessor controls the output signal when emergencies occur. When the sub microprocessor judges that the main microprocessor and the system recovers from the fault. The safety and reliability of the EPB system can be improved using the proposed fault diagnosis system.</p> <p>Index Terms—EPB(Electronic Parking Brake), Fail-Safe, Diagnostic, Safety, Reliability.</p>
<p>AE009</p>	<p>Stereo Camera-based Intelligence Surveillance System JunghwanKo Inha Technical College, Korea</p> <p>Abstract—In this paper, a stereo camera-based video surveillance system using pan/tilt controller is suggested and implemented. Some experiments with video images for 3 moving persons show that a person could be identified with these extracted height and stride parameters. Some experiments with video images for 3 moving persons show that a person could be identified with these extracted height and stride parameters.</p> <p>Index Terms—Stereo camera, Surveillance, Pan-tilt</p>
<p>AE201</p>	<p>Programmable Automatic On and Off Controller for Three Phase Electric Motor Rama V. Dhekale Kisan Veer Mahavidhyalaya, India</p> <p>Abstract—Automatic on and off for three phase electric motor is done by the use of programmable time switch in which maximum of 8 time durations are programmed. Accordingly three phase electric motor is made on and off automatically. Electronic control circuit is added in this system which controls the functions of starter of three phase electric motor so that three phase electric motor is made on and off as per the programmed time durations. Such system is useful for the farmer, industries, railway stations etc. where three phase electric motors are used.</p> <p>Index Terms—Programmable, Controller, three phase, Electric Motor, Automatic</p>

**Poster Presentation
 Conference Room III**

E019	<p>Effect of Purging Rate on the Calibration of Dew Point Sensor and the Estimation of Measurement Uncertainty <i>Yun-Kyung Bae and Dong-Hoon Hyun</i> Korea Testing Laboratory, South Korea</p> <hr/> <p>Abstract—The purpose of this paper is to study the effect of purging rate on calibration or test of the dew point sensors and estimation of measurement uncertainty. The measurement is carried out to analyze the variation on measured dew point temperatures for the sample dew point sensors (DPS) due to various durations of purge by using calibrated standard chilled mirror hygrometer. To set up measurement condition, the whole measurement system were kept in the state of purging for 3 hours, 15 hours, 65 hours, 140 hours, 200 hours. The dew point temperatures were measured in the range from -50 °C to 10 °C. In order to investigate the effect of purging rate as an uncertainty source on the measurement uncertainty, the contributions to the standard uncertainty for purging rate were also estimated due to reference dew point temperatures. The measurement was conducted according to standard calibration procedure of Korea Testing Laboratory which assures suitability and traceable results. It is also based on international standards.</p> <p>Index Terms—dew point temperature, purging rate, dew point sensor, chilled mirror, calibration, measurement uncertainty.</p>
E028	<p>System Dynamics of a Marine Renewable Energy Scheme (MRE) for Malaysia <i>Andrew Huey Ping TAN, Khin Fai CHEN, and EngHwa YAP</i> University College London, Australia</p> <hr/> <p>Abstract—MRE provides great potential for Malaysia, an emerging economy, to diversify its primary energy mix and ensuring the security of its energy supply. In this paper, the state-of-the-art of each MRE type is studied alongside hydrographical and geographical conditions of Malaysian waters. It is based upon this knowledge that an MRE scheme is proposed for Malaysia. However, introducing a complex MRE system into Malaysia's energy pool requires in-depth understanding of key governing factors and the dynamic behaviours of its implementation using a systemic approach. Results from system dynamics modelling have identified key-enablers to fast-track the implementation of MRE in Malaysia.</p> <p>Index Terms—System dynamics, current, MRE, Malaysia, energy</p>
E054	<p>Study on the Judgment of Cell Detachment Using Image Processing <i>Jui-Yung Chung, Yu-I Huang, and Chyung Ay</i> National Chiayi University, Taiwan</p> <hr/> <p>Abstract—This study combines image processing and enzymeto conduct the research and develop a detection system for adhesivecells detachment. First, a PCI video capture card is used to capture the microscope images into the computer, a program is editedto detect cell morphology and determine the detachment status of the cells, and then cell morphology was compared by detection data (roundness and centroid locating), in order to establish rules to detect the cell suspensions. This experiment will find the boundary sensitivity parameter, “fudgeFactor”, and the rules for the detection of cell suspension. The multiple displacement</p>

	<p>difference compliance rate(90%) is greater than displacement difference compliance rate (70%), and compared with the roundness detection, then cell detachment can be accurately measured.</p> <p>Index Terms—Cell detachment, trypsin enzyme, Image processing</p>
E055	<p>Study on the Young's Modulus of Red Blood Cells using Atomic Force Microscope <i>Cheng-Chang Lien , Meng-Chien Wu , Chyung Ay</i> National Chiayi University, Taiwan</p> <p>Abstract—The force-displacement curves of rat's red blood cells (RBC) were measured by atomic force microscope (AFM) in this study, and the young's modulus of RBC were calculated. The different speed and loads of probe on AFM was conducted to exam the effect of young's modulus in RBC. Furthermore, the relationship between young's modulus of RBC and different depth of indentation from force-displacement curves were investigated. The experimental results and analysis showed that when probe's maximum load was 5 nN and the velocity was set for 1, 5, 10 and 20 $\mu\text{m/s}$, the young's modulus of normal red blood cells for probe down measurements to AFM were 129.56 ± 42.80, 141.56 ± 31.15, 147.90 ± 24.35 and 149.69 ± 29.27 kPa, respectively. It represented that the young's modulus of normal red blood cells depended on probe's velocity. Then when probe's velocity was 1 $\mu\text{m/s}$ and the load was changed to 1, 5 and 10 nN, the young's modulus of normal red blood cells were measured for 41.45 ± 22.64, 82.72 ± 53.99 and 202.40 ± 16.01 kPa, respectively. It represented that the young's modulus of normal red blood cells depended on the probe's load. On the other side, the results of force-displacement curves exam demonstrated that the deeper of probe indented in cells, the measured young's modulus of normal red blood cells would be increased more.</p> <p>Index Terms—Atomic force microscope, Red blood cells, Young's modulus.</p>
E056	<p>Electric Cultivator Design and Its Impact of the Operator <i>Kuang-Wen Hsieh, Chih-ShiuanLu, and Huaang-YouhHong</i> National Chiayi University, Chiayi, Taiwan</p> <p>Abstract—Small type gasoline engine has the advantage of lightweight and low energy, but its emissions of carbon dioxide will lead to global greenhouse gas growing. This study aims to test the performance of the cultivator between different soil and tools. Comparative test electric and gasoline engine type cultivator contains the following items: energy consumption, carbon dioxide emissions in the job and the operator heart rate change. The results show that the width of 60 cm and depth of 3 cm operating conditions weeding, electric cultivators and gasoline engine cultivator average turn time was 2.9 seconds and 3.3 seconds, with an average forward speed were 0.535 and 0.515 m/s. Comparison of the time and forward speed cornering, the electric cultivator superior gasoline engine cultivator, and can successfully achieve high torque output characteristics weeding needed. Energy consumption and carbon emissions test data show that the loam fields, the average power consumption cost of NT \$ 21.2/ha; carbon dioxide emissions by an average of 26 kg/ha. This result shows that energy consumption in the consideration of the performance of carbon dioxide emissions, electric cultivators have lower costs. The test results are displayed in the field; the electric cultivator operator heart rate is</p>

lower than the gasoline engine cultivator and has significant difference statistically. Therefore, in the field of long-term operating conditions, the electric cultivator helps reduce physical exertion and operator fatigue.

Index Terms—Electric cultivator, Carbon reduction, Fatigue, Heart rate

About Keynote Speaker:

Keynote Speaker I



**Prof. Wei-Hsin Liao,
The Chinese University of Hong Kong, China**

Wei-Hsin Liao received his Ph.D. in Mechanical Engineering in May 1997 from The Pennsylvania State University, University Park, USA. At Penn State University, he received the Inventor Incentive Award and Sigma Xi Graduate Research Award. Since August 1997, Dr. Liao has been with the Department of Mechanical and Automation Engineering at The Chinese University of Hong Kong (CUHK), where he is also the founding director of the Smart Materials and Structures Laboratory. Dr. Liao currently serves as the Programme Director, MSc Programme in Biomedical Engineering, Division of Biomedical Engineering. He was the Program Chair for the International Symposium on Smart Structures and Microsystems in 2000, as well as the 2005 IEEE International Conference on Information Acquisition. Since 2000, he has been a member of the International Organizing Committee of the International Conference on Adaptive Structures and Technologies (ICAST). He was the Conference Chair for the

20th ICAST held in Hong Kong in 2009. He is the Conference Co-Chair of the Active and Passive Smart Structures and Integrated Systems, in the SPIE Smart Structures/NDE. Dr. Liao has been a Principal Investigator of several projects supported by the Hong Kong Research Grants Council and Innovation and Technology Commission, Hong Kong Special Administrative Region. His research has led to publications of over 130 technical papers in international journals and conference proceedings, three US patents and four other US patent applications. He received the T A Stewart-Dyer/F H Trevithick Prize 2005, awarded by the Institution of Mechanical Engineers (IMechE). In 2008, he received the Best Paper Award in Structures from the American Society of Mechanical Engineers (ASME). He also received the Best Paper Award in Automation in the 2009 IEEE International Conference on Information and Automation, and the Best Conference Paper Award in the 2011 IEEE International Conference on Mechatronics and Automation. He was awarded the Research Excellence Award (2010-2011) of CUHK. Dr. Liao is the Chair of Joint

Keynote Speaker II



Prof. Shishir Kumar Sahu
National Institute of Technology, Rourkela, India

Dr. Shishir Kumar Sahu received his undergraduate engineering degree in Civil Engineering from UCE, Burla, Sambalpur University, India. After his Ph.D. degree from IIT, Kharagpur on a MHRD fellowship, he has done post doctoral research in Institute of Sound and Vibration, Southampton University, UK during 2007 on a British Council fellowship. He is now working as Dean, Planning & Development of National Institute of Technology, Rourkela, India and a Professor of Civil Engineering in the institute. His industrial experience includes works department, Government of Orissa and Indian Railways. He is the author of 50 research papers including twenty publications in reputed international journals. He has presented several papers in international conferences including Southampton and Singapore etc. His research interests include structural dynamics, stability of plate and shell structures, composite materials, and finite-element methods.

Keynote Speaker III



Prof. Chin-Chen Chang
Feng Chia University

Professor C.C. Chang was born in Taichung, Taiwan on Nov. 12th, 1954. He obtained his Ph.D. degree in computer engineering from National Chiao Tung University. He's first degree is Bachelor of Science in Applied Mathematics and master degree is Master of Science in computer and decision sciences. Both were awarded in National Tsing Hua University. Dr. Chang served in National Chung Cheng University from 1989 to 2005. His current title is Chair Professor in Department of Information Engineering and Computer Science, Feng Chia University, from Feb. 2005.

Prior to joining Feng Chia University, Professor Chang was an associate professor in Chiao Tung University, professor in National Chung Hsing University, chair professor in National Chung Cheng University. He had also been Visiting Researcher and Visiting Scientist to Tokyo University and Kyoto University, Japan. During his service in Chung Cheng, Professor Chang served as Chairman of the Institute of Computer Science and Information Engineering, Dean of College of Engineering, Provost and then Acting President of Chung Cheng University and Director of Advisory Office in Ministry of Education, Taiwan.

Professor Chang's specialties include, but not limited to, data engineering, database systems, computer cryptography and information security. A researcher of acclaimed and distinguished services and contributions to his country and advancing human knowledge in the field of information science, Professor Chang has won many research awards and honorary positions by and in prestigious organizations both nationally and internationally. He is currently a Fellow of IEEE and a Fellow of IEE, UK. On numerous occasions, he was invited to serve as Visiting Professor, Chair Professor, Honorary Professor, Honorary Director, Honorary Chairman, Distinguished Alumnus, Distinguished Researcher, Research Fellow by universities and research institutes. He also published over 1,100 papers in Information Sciences. In the meantime, he participates actively in international academic organizations and performs advisory work to government agencies and academic organizations.

Keynote Speaker IV



Prof. Sergei Gorlatch
University of Muenster, Germany

Prof. Sergei Gorlatch is an internationally acknowledged expert in the area of algorithms, architectures, software and applications for modern and emerging computer and networked systems. Sergei Gorlatch has been Full Professor of Computer Science at the University of Muenster (Germany) since 2003. Earlier he was Associate Professor at the Technical University of Berlin, Assistant Professor at the University of Passau, and Humboldt Research Fellow at the Technical University of Munich, all in Germany.

Prof. Gorlatch has about 200 peer reviewed publications in renowned international books, journals and conferences. He is often delivering invited talks at international conferences and serves at their program committees.

Prof. Gorlatch was principal investigator in several international research and development projects in the field of parallel, distributed, Grid and Cloud algorithms and computing, as well as e-Learning, funded by the European Commission and by German national bodies. In the area of high-performance computing, his group has been recently developing a novel, high-level SkelCL library (<http://skelcl.uni-muenster.de/>) or efficient programming of parallel algorithms on emerging many-core systems with accelerators.

Among his recent achievements in the area of communication and future Internet is the Real-Time Framework (<http://www.real-time-framework.com>) developed in his group as a novel platform for high-level development of real-time, highly interactive applications like multi-player online games, advanced e-Learning, crowd simulations, etc.

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Oct 5-7, 2014 Asheville, North Carolina, USA	ICMCE 2014	2014 the 3rd International Conference on Mechanics and Control Engineering http://www.icmce.org/	Applied Mechanics and Materials Journal (ISSN: 1660-9336). <i>indexed by Elsevier: SCOPUS www.scopus.com and EiCompendex (CPX) www.ei.org/. Cambridge Scientific Abstracts (CSA) www.csa.com, Chemical Abstracts (CA) www.cas.org, Google and Google Scholar google.com, ISI (ISTP, CPCI, Web of Science) www.isinet.com, Institution of Electrical Engineers (IEE) www.iee.org, etc.</i>
Oct. 24-26,2014 Beijing	ICGIP 2014	2014 6th International Conference on Graphic and ImageProcessing http://www.icgip.org/	International Journal of Engineering and Technology(IJET) (ISSN; 1793-8244 (Online Version); 1793-8236 (Print Version)) <i>included in the Engineering & Technology Digital Library, Google Scholar, Ulrich Periodicals Directory, Crossref, ProQuest, Electronic Journals Library.</i>
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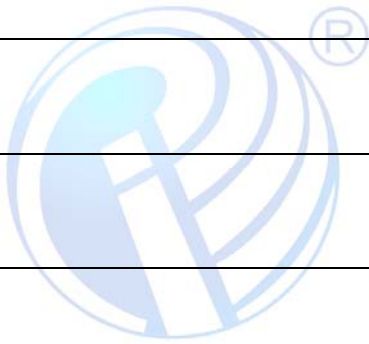
The 2014 IACSIT Hong Kong Conferences

	ICRVC 2014	2014 International Conference on Robotics and Computer Vision http://www.icrcv.org/	International Journal of Computer Theory and Engineering (IJCTE) ISSN: 1793-8201 Journal of Automation and Control Engineering, ISSN: 2301-3702
November 21-23, 2014 Singapore	ICPES 2014	2014 the 4th International Conference on Power and Energy Systems http://www.icpes.org/	All accepted papers of ICPES 2014 will be published in the Applied Mechanics and Materials Journal (ISSN: 1660-9336).
	ICMMC 2014	International Conference on Mechanical Manufacturing and Control http://www.icmmc.org/	All accepted papers of ICMMC 2014 will be published in the Applied Mechanics and Materials Journal (ISSN: 1660-9336).
	ICNIT 2014	2014 5th International Conference on Networking and Information Technology http://www.icnit.org/	Accepted papers will be published in the one of the following Journals with ISSN. International Journal of Computer and Communication Engineering (IJCCE)-ISSN: 2010-3743; Journal of Advances in Computer Networks (JACN)-ISSN: 1793-8244; Journal of Communications-ISSN: 1796-2021
Dec 18-20, 2014 Barcelona, Spain	ICPSE 2014	2014 3rd International Conference on Power Science and Engineering http://www.icpse.org/	Applied Mechanics and Materials Journal (ISSN: 1660-9336) <i>Indexed by Elsevier: SCOPUS www.scopus.com and EiCompendex (CPX) www.ei.org. Cambridge Scientific Abstracts (CSA) www.csa.com, Chemical Abstracts (CA) www.cas.org, Google and Google Scholar google.com, ISI (ISTP, CPCI, Web of Science) www.isinet.com, Institution of Electrical Engineers (IEE) www.iee.org, etc</i>
	ICNB 2014	2014 5th International Conference on Nanotechnology and Biosensors http://www.icnb.org/	Applied Mechanics and Materials Journal (ISSN: 1660-9336) <i>Indexed by Elsevier: SCOPUS www.scopus.com and EiCompendex (CPX) www.ei.org. Cambridge Scientific Abstracts (CSA) www.csa.com, Chemical Abstracts (CA) www.cas.org, Google and Google Scholar google.com, ISI (ISTP, CPCI, Web of Science) www.isinet.com, Institution of Electrical Engineers (IEE) www.iee.org, etc.</i>
	ICMPM 2014	2014 International Conference on Mechanical Properties of Materials http://www.icmpm.org/	Applied Mechanics and Materials Journal (ISSN: 1660-9336) <i>Indexed by Elsevier: SCOPUS www.scopus.com and EiCompendex (CPX) www.ei.org. Cambridge Scientific Abstracts (CSA) www.csa.com, Chemical Abstracts (CA) www.cas.org, Google and Google Scholar google.com, ISI (ISTP, CPCI, Web of Science) www.isinet.com, Institution of Electrical Engineers (IEE) www.iee.org, etc.</i>

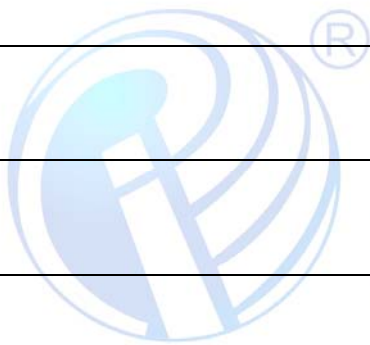
The 2014 IACSIT Hong Kong Conferences

Dec 22-24, 2014 Barcelona, Spain	ICCNE 2014	2014 International Conference on Communications and Network Engineering http://www.iccne.org/	<p>All accepted papers will be published in one of the indexed Journals after being selected.</p> <p>Journal of Computers (JCP, ISSN: 1796-203X, 20 Papers)</p> <p>Journal of Software (JSW, ISSN: 1796-217X, 20 Papers)</p> <p>International Journal of Future Computer and Communication (IJFCC, ISSN: 2010-3751, 30 Papers)</p> <p>International Journal of Computer and Communication Engineering (IJCCE, ISSN: 2010-3743, 30 Papers)</p> <p>Journal of Advances in Computer Networks (JACN, ISSN: 1793-8244, 20 Papers)</p>
	ICOAI2014	2014 International Conference on Artificial Intelligence http://www.icoai.org/	<p>International Journal of Machine Learning and Computing (IJMLC ISSN: 2010-3700)</p> <p><i>Abstracting/ Indexing: Engineering & Technology Digital Library, Google Scholar, Crossref, ProQuest, Electronic Journals Library, DOAJ and EI (INSPEC, IET).</i></p>
	ICCSIT 2014	2014 7th International Conference on Computer Science and Information Technology http://www.iccsit.org/	<p>All accepted papers will be published in one of the indexed Journals after being selected.</p> <p>Journal of Computers (JCP, ISSN: 1796-203X, 20 Papers)</p> <p>Journal of Software (JSW, ISSN: 1796-217X, 20 Papers)</p> <p>Journal of Communications(JCM, ISSN: 1796-2021, 20 papers)</p> <p>International Journal of Future Computer and Communication (IJFCC, ISSN: 2010-3751, 30 Papers)</p> <p>International Journal of Computer Theory and Engineering (IJCTE, ISSN: 1793-8201, 30 Papers)</p> <p>International Journal of Computer and Electrical Engineering (IJCEE, ISSN: 1793-8163, 30 Papers)</p> <p>International Journal of Information and Electronics Engineering (IJIEE, ISSN: 2010-3719, 20 Papers)</p> <p>International Journal of Information and Education Technology (IJJET, ISSN: 2010-3689, 20 Papers)</p> <p>Journal of Advances in Computer Networks (JACN, ISSN: 1793-8244, 20 Papers)</p> <p>Lecture Notes on Software Engineering (LNSE, ISSN: 2301-3559, Papers)</p>

Note



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