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# International Conference on Signal and Image Processing (CSIP 2013)

## Conference Schedule

### Registration (July 14 – 15)

**Location:** 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 14, 14:00 - 17:00

July 15, 08:30 - 15:00

### Invited Speech Session (July 15, Morning)

**Location:** ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 08:30 - 09:10

➤ **Invited Speech:** Distributed Beam and Nullforming for Distributed MIMO

**Speaker:** Prof. Soura Dasgupta, University of Iowa, USA

**Time:** 08:30-09:10

### Oral Session (July 15, Morning & Afternoon)

**Location:** ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 09:10-18:00

### Lunch & Dinner

**Location:** VISTA CAFÉ (雅景咖啡厅) 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 12:00-13:30

July 15, 18:00-19:30

## Invited Speech Session

### Invited Speech: Distributed Beam and Nullforming for Distributed MIMO

**Speaker:** Prof. Soura Dasgupta, University of Iowa, USA

**Time:** 08:30-09:10, July 15, 2013

**Location:** ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### Abstract

Multi-antenna, or MIMO, technology has revolutionized wireless communication in terms of both power and spectral efficiency, and is now a part of commercial wireless standards (e.g., WiFi and cellular). MIMO techniques today, however, are fundamentally constrained by form factor and carrier wavelength, both of which determine the number of antennas that can be accommodated on a transceiver.

In recent years proposals have been made for distributed MIMO where groups of transceivers self-organize into virtual arrays that are indistinguishable in their functionality from a centralized antenna array and scales to an arbitrary number of nodes. Such distributed MIMO (DMIMO) concepts have long been analyzed by theorists and dismissed by practitioners because of fundamental synchronization bottlenecks. This is so as unlike centralized antennas, distributed MIMO involves nodes that each operates on its own clock. The frequency and phase of these oscillators undergo drift modeled by Brownian motion. Even if they start in complete synchrony, they become virtually incoherent within fractions of milliseconds. Nonetheless there has been exciting recent progress some of which the proposer and his colleagues, R. Mudumbai from the University of Iowa, D. R. Brown from Worcester Polytechnic Institute, and U. Madhow from the University California at Santa Barbara, have pioneered.

The proposed talk will focus on synchronization issues involving two basic building blocks of DMIMO: distributed beamforming and distributed nullforming. In the former  $N$ -nodes collaborate to achieve a coherent beam whose power is  $N^2$ -fold (as opposed to  $N$ -fold) that due to a solitary node. Incoherence only results in an  $N$ -fold increase. In nullforming, nodes achieve a null at a prescribed location. It assists in achieving spatial-multiplexing and also secure communication. The key ingredient is scalable feedback by a cooperating receiver. The specific topics to be covered are as follows.

1. Introduction
  - a. DMIMO
  - b. Distributed Beam and Nullforming
2. How do oscillators behave?
3. How to synchronize?
4. Scalable feedback for Distributed Beamforming
5. Scalable feedback for Distributed Nullforming
6. Properties
7. Where do we go from here?

## Oral Session

ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor

Monday, July 15

ID	Paper Title	Speaker	Affiliation	Time
20022	Discrete Entropic Uncertainty Relations Associated with FRFT	Xu Guanlei	Dalian Navy Acedmy, Ocean Department	09:10-09:25
20046	SAR Imaging of Moving Target Based on Quadratic Phase Function	Wang Chao	Harbin Institute of Technology	09:25-09:40
20069	Environmental Sound Recognition Using Double-Level Energy Detection	Xiaoxia Zhang	Fuzhou University	09:40-09:55
20077	Semi-Rigid Registration of 3D points	Baowei Lin	Hiroshima University	09:55-10:10
20081	Research on Motion Attention Fusion Model-based Video Target Detection and Extraction of Global Motion Scene	Long Liu	Xi'an University of Technology	10:10-10:25
<b>COFFEE BREAK</b>				<b>10:25-10:45</b>
20088	Color Texture Image Inpainting Using the Non Local CTV Model	Jinming Duan	Qingdao University	10:45-11:00
20091	Robust Low-Power Algorithm for Random Sensing Matrix for Wireless ECG Systems Based on Low Sampling-rate Approach	Balouchestani Mohammadreza	Ryerson University	11:00-11:15
20104	Template Matching using Statistical Model and Parametric Template for Multi-Template	Chin-Sheng Chen	National Taipei University of Technology	11:15-11:30
20114	Performance Comparison of Three Algorithms Applied to UM2000 Signal Demodulation	Qiao Zhichao	Tsinghua University	11:30-11:45
20123	Combining Multiple Cues for Pedestrian Detection in Crowded Situations	Shih-Shinh Huang	National Kaohsiung First University of Science and Technology	11:45-12:00
20133	Fuzzy C mean Thresholding based Level Set for Automated Segmentation of Skin Lesions	Masood Ammara	University of Technology Sydney	14:00-14:15
20148	A Studyof Motor Bearing Fault Diagnosis using Modulation Signal Bispectrum Analysis of Motor Current Signals	Ahmed Alwodai,	University of Huddersfield	14:15-14:30
20163	Computer Tomography and Ultrasonography Image Registration Based on the Cooperation of GPU and CPU	Chin-Sheng Chen	National Taipei University of Technology	14:30-14:45
20173	Combined Dictionary Learning In Facial Expression Recognition	Zhang Ziyang	Ryerson University	14:45-15:00
20254	Holographic Microwave Imaging Array for Brain Stroke Detection	Wang Lulu	Auckland University of Technology	15:15-15:30
20265	Local Orientation Field Based Nonlocal Means Method For Fingerprint Image De-noising	Zou Jian	Huazhong University of Science and Technology	15:30-15:45
20268	Image Processing Techniques in Shockwave Detection and Modeling	Cui Suxia	Prairie View A&M University	15:45-16:00

<b>ID</b>	<b>Paper Title</b>	<b>Speaker</b>	<b>Affiliation</b>	<b>Time</b>
	<b>COFFEE BREAK</b>			<b>16:00-16:15</b>
20275	Face Recognition Using Chain Codes	Boodoo-Jahangeer Bibi Nazmeen	University of Mauritius	16:15-16:30
20282	Corner-Based Image Alignment using Pyramid Structure with Gradient Vector Similarity	Chin-Sheng Chen	National Taipei University of Technology	16:30-16:45
20214	Frequency Synchronization in OFDM System	Geetha Priya	Anna University	16:45-17:00
20320	Restricted Hysteresis Reduce Redundancy in Edge Detection	Bo Li	Umea University	17:00-17:15
20179	A Transient Enhancement Method for Two-Stage Helical Gearbox Fault Diagnosis Based on ALE	Xiang Tian	University of Huddersfield	17:15-17:30
20175	Comparison of Wavelet Types and Thresholding Methods on Wavelet Based Denoising of Heart Sounds	Burhan ERGEN	Firat University	17:30-17:45
20245	An overview of Principle Component Analysis	Mohd Shahidan bin Abdullah	University Technology Malaysia	17:45-18:00
20336	Study of Symmetry Process Behavior in Fractal Gray Image Compression by Traditional Method	Eman Al-Hilo	Kufa University	18:00-18:15

**ID:** 20022

**Title:** Discrete Entropic Uncertainty Relations Associated with FRFT

**Name:** Xu Guanlei

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### ABSTRACT

Based on the definition and properties of discrete fractional Fourier transform (DFRFT), we introduced the discrete Hausdorff-Young inequality. Furthermore, the discrete Shannon entropic uncertainty relation and discrete Rényi entropic uncertainty relation were explored. Also, the condition of equality via Lagrange optimization was developed, as shows that if the two conjugate variables have constant amplitudes that are the inverse of the square root of numbers of non-zero elements, then the uncertainty relations reach their lowest bounds. In addition, the resolution analysis via the uncertainty is discussed as well.

**ID:** 20046

**Title:** SAR Imaging of Moving Target Based on Quadratic Phase Function

**Name:** Wang Chao

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### ABSTRACT

In this paper, a novel signal processing technique have been developed to refocus moving targets image from their smeared responses in the Synthetic Aperture Radar (SAR) image according to the characteristics of the received signals for moving targets. Quadratic Phase Function is introduced to the parameters estimation for moving target

echo and SAR imaging. Our method is available even under a low SNR environment and acquiring an exact SAR image of moving targets. The simulated results demonstrated the validity of the algorithm proposed.

**ID:** 20069

**Title:** Environmental Sound Recognition Using Double-Level Energy Detection

**Name:** Xiaoxia Zhang

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### **ABSTRACT**

The performance of classic Mel-frequency cepstral coefficients (MFCC) is unsatisfactory in noisy environment with different sound sources from nature. In this paper, a classification approach of the ecological environmental sounds using the double-level energy detection (DED) was presented. The DED was used to detect the existence of the sound signals under noise conditions. In addition, MFCC features from the frames which were detected the presence of the sound signals by DED were extracted. Experimental results show that the proposed technology has better noise immunity than classic MFCC, and also outperforms time-domain energy detection (TED) and frequency-domain energy detection (FED) respectively.

**ID:** 20077

**Title:** Semi-Rigid Registration of 3D points

**Name:** Baowei Lin

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### **ABSTRACT**

In this paper, we proposed a method for semi-rigid changed 3D point clouds registration. We first segment the point clouds into individual segments and then the alignment energy costs of each segment are calculated. The rough initial transformation is estimated by minimizing the energy cost using integer programming. The final registration results are obtained by rigid alignments of separated corresponded segments. Experimental result with simulated point clouds demonstrate that the concept of semi-rigid registration works well.

**ID:** 20081

**Title:** Research on Motion Attention Fusion Model-based Video Target Detection and Extraction of Global Motion Scene

**Name:** Long Liu

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### **ABSTRACT**

For target detection algorithm under global motion scene, this paper suggests a target detection algorithm based on motion attention fusion model. Firstly, the motion vector field is pre-processed by accumulation and median filter; Then, according to the temporal and spatial character of motion vector, the attention fusion model is defined, which is used to detect moving target; Lastly, the edge of video moving target is made exactly by morphologic operation and

edge tracking algorithm. The experimental results of different global motion video sequences show the proposed algorithm has a better veracity and speedup than other algorithm.

**ID:** 20088

**Title:** Color Texture Image Inpainting Using the Non Local CTV Model

**Name:** Jinming Duan

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### **ABSTRACT**

The classical TV (Total Variation) model has been applied to gray texture image denoising and inpainting previously based on the non local operators, but such model can not be directly used to color texture image inpainting due to coupling of different image layers in color images. In order to solve the inpainting problem for color texture images effectively, we propose a non local CTV (Color Total Variation) model. Technically, the proposed model is an extension of local TV model for gray images but we take account of the coupling of different layers in color images and make use of concepts of the non-local operators. As the coupling of different layers for color images in the proposed model will increase computational complexity, we also design a fast Split Bregman algorithm. Finally, some numerical experiments are conducted to validate the performance of the proposed model and its algorithm.

**ID:** 20091

**Title:** Robust Low-Power Algorithm for Random Sensing Matrix for Wireless ECG Systems Based on Low Sampling-rate Approach

**Name:** Balouchestani Mohammadreza

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### **ABSTRACT**

The main drawback of current ECG systems is the location-specific nature of the systems due to the use of fixed/wired applications. That is why there is a critical need to improve the current ECG systems to achieve extended patient mobility and to cover security handling. With this in mind, Compressed Sensing (CS) procedure and the collaboration of Sensing Matrix Selection (SMS) approach are used to provide a robust ultra-low-power approach for normal and ab-normal ECG signals. Our simulation results based on two proposed algorithms illustrate 25% decrease in sampling-rate and a good level of quality for the degree of incoherence between the random measurement and sparsity matrices. The simulation results also confirm that the Binary Toeplitz Matrix (BTM) provides the best compression performance with the highest energy efficiency for random sensing matrix.

**ID:** 20104

**Title:** Template Matching using Statistical Model and Parametric Template for Multi-Template

**Name:** Chin-Sheng Chen

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### **ABSTRACT**

This paper represents a template matching using statistical model and parametric template for multi-template. This algorithm consists of two phases: training and matching phases. In the training phase, the statistical model created by principal component analysis method (PCA) can be used to synthesize multi-template. The advantage of PCA is to reduce the variances of multi-template. In the matching phase, the normalized cross correlation (NCC) is employed to find the candidates in inspection images. The relationship between image block and multi-template is built to use para-metric template method. Results show that the proposed method is more efficient than the conventional template matching and parametric template. Furthermore, the proposed method is more robust than conventional template method.

**ID:** 20114

**Title:** Performance Comparison of Three Algorithms Applied to UM2000 Signal Demodulation

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### **ABSTRACT**

UM2000 signal is a type of multi-audio frequency-modulated signal which is widely used for railway blocking. Principles of three typical demodulating algorithms are presented in details in this paper. Bit error rates of the three methods at different SNRs are achieved by Monte Carlo simulation experiments. Among the three algorithms, the quadrature demodulation has the best performance at the real working environment. However, the three methods have the same problem of phase hopping when noise is too strong.

**ID:** 20123

**Title:** Combining Multiple Cues for Pedestrian Detection in Crowded Situations

**Name:** Shih-Shinh Huang

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### **ABSTRACT**

This paper proposes a vision-based pedestrian detection in crowded situations based on a single camera. The main idea behind our work is to fuse multiple cues so that the major challenges, such as occlusion and complex background facing in the topic of crowd detection can be successfully overcome. Based on the assumption that human heads are visible, circle Hough transform (CHT) is applied to detect all circular regions and each of which is considered as the head candidate of a pedestrian. After that, the false candidates resulting from complex background are firstly removed by using template matching algorithm. Two proposed cues called head foreground contrast (HFC) and block color relation (BCR) are incorporated for further verification. The rectangular region of every detected human is determined by the geometric relationships as well as foreground mask extracted through background subtraction process. Three videos are used to validate the proposed approach and the experimental results show that the proposed method effectively lowers the false positives at the expense of little detection rate.

**ID:** 20133

**Title:** Fuzzy C mean Thresholding based Level Set for Automated Segmentation of Skin Lesions

**Name:** Masood Ammara

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## **ABSTRACT**

Accurate segmentation is an important and challenging task in any computer vision system. It also plays a vital role in computerized analysis of skin lesion images. This paper presents a new segmentation method that combines the advantages of fuzzy C mean algorithm, thresholding and level set method. 3-class Fuzzy C mean thresholding is applied to initialize level set automatically and also for estimating controlling parameters for level set evolution. Parameters for performance evaluation are presented and segmentation results are compared with some other state-of-the-art segmentation methods. Increased true detection rate and reduced false positive and false negative errors confirm the effectiveness of proposed method for skin cancer detection.

**ID:** 20148

**Title:** A Study of Motor Bearing Fault Diagnosis using Modulation Signal Bispectrum Analysis of Motor Current Signals

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## **ABSTRACT**

Failure of induction motors are a large concern due to its influence over industrial production. Motor current signature analysis (MCSA) is common practice in industry to find motor faults. This paper presents a new approach to detection and diagnosis of motor bearing faults based on induction motor stator current analysis. Tests were performed with three bearing conditions: baseline, outer race fault and inner race fault. Because the signals associated with faults produce small modulations to supply component and high noise levels, a modulation signal bispectrum (MSB) is used in this paper to detect and diagnose different motor bearing defects. The results show that bearing faults can induced a detestable amplitude increases at its characteristic frequencies. MSB peaks show a clear difference at these frequencies whereas conventional power spectrum provides change evidences only at some of the frequencies. This shows that MSB has a better and reliable performance in extract small changes from the faulty bearing for fault detection and diagnosis. In addition, the study also show that current signals from motors with variable frequency drive controller have too much noise and it is unlikely to discriminate the small bearing fault component.

**ID:** 20163

**Title:** Computer Tomography and Ultrasonography Image Registration Based on the Cooperation of GPU and CPU

**Name:** Chin-Sheng Chen

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## **ABSTRACT**

Image registration is widely used in the biomedical image, but there are too many textures and noises in the biomedical image to get a precise image registration. In order to get the excellent registration performance, it needs more complex image processing, and it will spend expensive computation cost. For the real time issue, this paper proposes edge gradient direction image registration applied to Computer Tomography(CT) image and Ultrasonography (US) image based on the cooperation of Graphic Processor Unit (GPU) and Central Processor Unit

(CPU). GPU can significantly reduce the computation time. First, the CT image slice is extracted from the CT volume by the region growing and the interpolation algorithm. Secondly, the image pre-processing is employed to reduce the image noises and enhance the image features. There are two kinds of the image pre-processing algorithms invoked in this paper: (1) median filtering and (2) anisotropic diffusion. Last but not least, the image edge gradient information is obtained by Canny operator, and the similarity measurement based on gradient direction is employed to evaluate the similarity between the CT and the US images. The experimental results show that the proposed architecture can distinctively improve the efficiency and are more suitably applied to the real world.

**ID:** 20173

**Title:** Combined Dictionary Learning In Facial Expression Recognition

**Name:** Zhang Ziyang

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### **ABSTRACT**

Dictionary learning has been applied to face recognition and gets good results. However few works applied dictionary learning in facial expression recognition. This paper investigates the application of K-SVD in facial expression recognition. Since K-SVD focuses on reconstruction and lacks discriminant capability. It has similar classification performance with image pixel values. To address this problem, this paper proposes a Combined Dictionary Scheme, which use combination of separate dictionaries. This yields better performance than the original single dictionary scheme in terms of both recognition rate and computation complexity.

**ID:** 20179

**Title:** A Transient Enhancement Method for Two-Stage Helical Gearbox Fault Diagnosis Based on ALE

**Name:** Tian Xiange

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### **ABSTRACT**

Periodical impulse component is one of typical fault characteristics in vibration signals from rotating machinery. However, this component is very small in the early stage of the fault and masked by various noises such as gear meshing components modulated by shaft frequency, which make it difficult to extract accurately for fault detection. The adaptive line enhancer (ALE) is an effective technique for separating sinusoids from broad-band components of an input signal for detecting the presence of sinusoids in white noise. In this paper, ALE is explored to suppress the periodical gear meshing frequencies and enhance the fault feature impulses for more accurate fault diagnosis. The results obtained from simulated and experimental vibration signals of a two stage helical gearbox prove that the ALE method is very effective in reducing the periodical gear meshing noise and making the impulses in vibration very clear in the time-frequency analysis. The results show a clear difference between the baseline and 30% tooth damage of a helical gear which has not been detected successfully in author's previous studies.

**ID:** 20254

**Title:** Holographic Microwave Imaging Array for Brain Stroke Detection

**Name:** Wang Lulu

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## **ABSTRACT**

This paper proposes a new holographic microwave imaging array (HMIA) technique for brain stroke detection. This approach is based on holographic microwave and aperture synthesis imaging techniques. The system is designed for operation at a single frequency of 2.5 GHz. A realistic three dimensional (3D) head model that contains skin, fat, skull, cerebrospinal fluid (CSF), grey matter, white matter and ischemic or hemorrhagic stroke area is developed using MATLAB to demonstrate the proposed HMIA imaging algorithm. A matching solution medium is used between the antennas and the head model. The study is conducted using HMIA computer simulations and 3D head model with stroke. The simulation results showed that small stroke area (5 mm in diameter) could be successfully detected with the HMIA approach.

**ID:** 20265

**Title:** Local Orientation Field Based Nonlocal Means Method For Fingerprint Image De-noising

**Name:** Zou Jian

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## **ABSTRACT**

The de-noising of the fingerprint image is one of the key tasks before the extraction of the minutiae in automatic fingerprint matching. When used for de-noising the fingerprint image, the nonlocal means method can not preserve the local minutiae in the fingerprint image very well. To address this problem, we propose a local orientation field based nonlocal means (NLM-LOF) method in this paper. Experimental results on the simulated and real images show that the proposed method can suppress noise effectively while preserving edges and details in the fingerprint image and it outperforms the state-of-art nonlocal means method in terms of qualitative metrics and visual comparisons.

**ID:** 20268

**Title:** Image Processing Techniques in Shockwave Detection and Modeling

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## **ABSTRACT**

Shockwave detection is critical in analyzing shockwave structure and location. High speed video imaging systems are commonly used to obtain image frames during shockwave control experiments. Image edge detection algorithms become natural choices in detecting shockwaves. In this paper, a computer software system designed for shockwave detection is introduced. Different image edge detection algorithms, including Roberts, Prewitt, Sobel, Canny, and Laplacian of Gaussian, are implemented and can be chosen by the users to easily and accurately detect the shockwaves. Experimental results show that the system meets the design requirements and can accurately detect shockwave for further analysis and applications.

**ID:** 20275

**Title:** Face Recognition Using Chain Codes

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## **ABSTRACT**

Face recognition is an active area of biometrics. This study investigates the use of Chain Codes as features for recognition purpose. Firstly a segmentation method, based on skin color model was applied, followed by contour detection, then the chain codes of the contours were determined. The first difference of chain codes were calculated since the latter is invariant to rotation. The features were calculated and stored in a matrix. Experiments were performed using the University of Essex Face database, and results show a recognition rate of 95 % with this method, when compared with Principal Components Analysis (PCA) giving 87.5 % recognition rate.

**ID:** 20282

**Title:** Corner-Based Image Alignment using Pyramid Structure with Gradient Vector Similarity

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## **ABSTRACT**

This paper presents a corner-based image alignment algorithm based on the procedures of corner-based template matching and geometric parameter estimation. This algorithm consists of two stages: (1) training phase, and (2) matching phase. In the training phase, a corner detection algorithm is used to extract the corners. These corners are then used to build the pyramid images. In the matching phase, the corners are obtained using the same corner detection algorithm. The similarity measure is then determined by the differences of gradient vector between the corners obtained in the template image and the inspection image, respectively. A parabolic function is further applied to evaluate the geometric relationship between the template and the inspection images. Results show that the corner-based template matching outperforms the original edge-based template matching in efficiency, and both of them are robust against non-linear light changes. The accuracy and precision of the corner-based image alignment are competitive to that of edge-based image alignment under the same environment. In practice, the proposed algorithm demonstrates its precision, efficiency and robustness in image alignment for real world applications.

**ID:** 20214

**Title:** Frequency Synchronization in OFDM System

**Name:** Geetha Priya

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## **ABSTRACT**

An accurate frequency synchronization method using the Zadoff-Chu (ZC) constant envelope preamble is analyzed, and a new preamble weighted by pseudo-noise sequence is used for orthogonal frequency division multiplexing (OFDM) systems. Using this method, frequency offset estimator range is greatly enlarged with no loss in accuracy. The range of the frequency estimation is  $\pm 30$  of subcarrier spacing using ZC sequence as preamble. Simulations in the MATLAB for an AWGN channel show that the proposed method achieves superior performance to existing techniques in terms of frequency accuracy and range.

**ID:** 20320

**Title:** Restricted Hysteresis Reduce Redundancy in Edge Detection

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### **ABSTRACT**

In edge detection algorithms, we find that there is a common redundancy problem, especially when the gradient direction is close to -135, -45, 45, and 135 degree. Double edge effect appears on the edges around these directions. This is caused by the discrete calculation of non-maximum suppression. Many algorithms use edge points as feature for further task such as line extraction, curve detection, matching and recognition. Redundancy is a very important factor of algorithm speed and accuracy. We find that most edge detection algorithms have redundancy of 50% in the worst case and 0% in the best case depending on the edge direction distribution. The common redundancy rate on natural image is approximately between 15% and 20%. Based on Canny's framework, we put a restriction in the hysteresis step. Our experiment shows that proposed restricted hysteresis reduce the redundancy successfully.

**ID:** 20175

**Title:** Comparison of Wavelet Types and Thresholding Methods on Wavelet Based Denoising of Heart Sounds

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### **ABSTRACT**

This paper focuses on the denoising of phonocardiogram (PCG) signals by means of discrete wavelet transform (DWT) using different wavelets and noise level estimation methods. The signal obtained by denoising from PCG signal contaminated white noise and the original PCG signal is compared to determine the appropriate parameters for denoising. The comparison is evaluated in terms of signal to noise ratio (SNR) before and after denoising. The results showed that the decomposition level is the most important parameter determining the denoising quality.

**ID:** 20245

**Title:** An overview of Principle Component Analysis

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### **ABSTRACT**

The principle component analysis (PCA) is a kind of algorithms in biometrics. It is a statistics technical and used orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables. PCA also is a tool to reduce multidimensional data to lower dimensions while retaining most of the information. It covers standard deviation, covariance, and eigenvectors. This background knowledge is meant to make the PCA section very straightforward, but can be skipped if the concepts are already familiar.

**ID:** 20336

**Title: Study of Symmetry Process Behavior in Fractal Gray Image Compression by Traditional Method**

**Name:** Eman Al-Hilo

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## **ABSTRACT**

In this paper study the effect of symmetry process on the compression parameters of the fractal image compression technique proposed by Jacquin. Two kinds of tests have been conducted. The first all kind of the symmetry operations [0-7] were taken; while the second tests were concentrated on studying the effect of the following parameters Block Size, Step Size, Domain Size on the probability distribution of symmetry operation. The results show that the higher value of PSNR and the lower value of ET occur at even symmetry operation only, but compression ratio is not affected with symmetry process. Also the occurrence probability of even symmetry is more than odd symmetry for all compression parameters. This behaviour can be utilized to reducing the encoding time to 50% with preserving PSNR.

# The 2<sup>nd</sup> International Conference on Pollution and Treatment Technology (PTT 2013)

## Conference Schedule

### Registration (July 14 – 15)

**Location:** 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 14, 14:00 - 17:00

July 15, 08:30 - 15:00

### Invited Speech Session (July 15, Morning)

**Location:** PLUM BLOSSOM ROOM (沁梅厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** June 15, 08:30-12:00

- **Invited Speech:** Health Effects of Traffic Pollution near Highways and Major Roadways  
**Speaker:** Prof. Doug Brugge, Tufts University, USA  
**Time:** 08:30-09:10
- **Invited Speech:** Oxytetracycline Removal by Nanoscale Zero Valent Iron in Oxidation and Photooxidation Process  
**Speaker:** Prof. Hossein Ganjidoust, Tarbiat Modares University, Iran  
**Time:** 09:10-09:50
- **Invited Speech:** Technological Revolution in Vermiculture for Eco-efficient Treatment of Human Wastes & Pollutants by Earthworms & Reuse of Treated Products in Agriculture for Elimination of Toxic Chemicals from Human  
**Speaker:** Prof. Rajiv Sinha, Griffith University, Australia  
**Time:** 10:20-11:00
- **Invited Speech:** Chemical and biological pollution hazards involved with utilization of treated wastewater for agricultural irrigation  
**Speaker:** Dr. Nirit Bernstein, Institute of Soil, Water and Environmental Sciences, Volcani Center, Israel  
**Time:** 11:00-11:40

**Coffee Break**                      **09:50-10:20**

## **Oral Session (July 15, Afternoon)**

**Location:** PLUM BLOSSOM ROOM (沁梅厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 14:00-17:10

## **Lunch & Dinner**

**Location:** VISTA CAFÉ (雅景咖啡厅) 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 12:00-13:30

July 15, 18:00-19:30



## Invited Speech Session

### Invited Speech: Health Effects of Traffic Pollution near Highways and Major Roadways

**Speaker:** Prof. Doug Brugge, Tufts University, USA

**Time:** 08:30-09:10, July 15, 2013

**Location:** PLUM BLOSSOM ROOM (沁梅厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### Abstract

Previous research indicates excess risk of cardiovascular disease amongst people residing close to major roadways. We recruited 704 residents from neighborhoods next to major highways (<450 m from edge of highway) in the cities of Somerville and Boston, MA (Chinatown, Dorchester and South Boston neighborhoods) and in urban background areas (>1 km from highways). Of these people, 454 attended at least one study clinic where health measures were collected, including CRP, IL-6, TNFa-RII, and fibrinogen in peripheral blood, blood pressure and ankle brachial index. Also, we used a mobile laboratory, stationary ambient sites and in-home monitoring to measure pollutants, with a primary focus on particle number count (PNC; an estimate of ultrafine particles, <100 nm). Using stationary site data we analyzed association of blood markers with PNC for acute time periods (0, 1, 2 day lags and moving averages up to 28 days). We found limited associations for CRP and IL-6, and greater effect estimates for longer moving averages and are exploring time series for blood pressure. We found that CRP and IL-6 were higher among residents living close to the highway compared to urban background after considering the influence of potential confounders. In addition, Chinese immigrants were less likely to have asthma and had lower levels of inflammation. We have explored PNC levels descriptively and built regression models that predict PNC hourly over the course of a year for one of our neighborhoods and we are working on models for the other neighborhoods. PNC levels were significantly affected by wind speed and direction, temperature, traffic volume, and distance from the highway or major roadways. We used ambient PNC values at residences to calculate exposure by considering time-activity patterns, window opening and air conditioning. Individual exposures are being tested for associations with health measures through regression and structural equation modeling.

### Invited Speech: Oxytetracycline Removal by Nanoscale Zero Valent Iron in

#### Oxidation and Photooxidation Process

**Speaker:** Prof. Hossein Ganjidoust, Tarbiat Modares University, Iran

**Time:** 09:10-09:50, July 15, 2013

**Location:** PLUM BLOSSOM ROOM (沁梅厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### Abstract

Antibiotic formulation effluents are well known for their difficult elimination by traditional biotreatment methods and their important contribution to environmental pollution due to its fluctuating and recalcitrant nature. In the present study the effect of the interactions of oxytetracycline (OTC) with nanoscale zero valent iron (NZVI) modified by UV-A radiation were investigated using batch experiments as a function of reactant concentration, pH, value of UV power, time, nano Iron concentration. In this Process the UV power was 200 W and after 6 hours and half, 155 ppm OTC aqueous solution by 1000 ppm nano-iron powder at pH value 3 were degraded. The removal efficiency, TOC and COD were 95, 89 and 85 percent respectively.

## **Invited Speech: Technological Revolution in Vermiculture for Eco-efficient**

### **Treatment of Human Wastes & Pollutants by Earthworms & Reuse of Treated**

### **Products in Agriculture for Elimination of Toxic Chemicals from Human**

**Speaker:** Former Assoc. Professor. Rajiv Sinha, Griffith University, Australia

**Time:** 10:20-11:00, July 15, 2013

**Location:** PLUM BLOSSOM ROOM (沁梅厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### **Abstract**

1). VERMI-COMPOSTING OF SOLID WASTES: We are facing the escalating socio-economic and environmental cost of dealing with current and future generation of mounting solid wastes all over the world. Waste management either by landfill disposal or incineration is environmentally highly destructive and economically prohibitive. Of greater environmental concern is that landfills emit huge and more powerful greenhouse gases like methane (22 times) and nitrous oxides (312 times) than carbon dioxides and also highly toxic trace gases like 'toluene & xylene'. Vermicomposting of organic wastes by waste-eater earthworms is proving to be economically & environmentally preferred technology over the conventional microbial composting technology. Earthworm participation enhances natural biodegradation and decomposition of organic wastes from 60 to 80 % given the optimum conditions of temperature (20-30 °C) and moisture (60-70 %). It takes nearly half the time to convert waste into compost and the process becomes faster with time as the army of degrader worms and the decomposer microbes proliferated by earthworms grows. About 5 kg of worms (numbering approx.10,000) can vermin-process 1 ton of organic wastes into vermicompost in just 30 days. The end product (vermicompost) is both 'disinfected' and 'detoxified', rich in key minerals & beneficial soil microbes.

## **Invited Speech: Chemical and biological pollution hazards involved with**

### **utilization of treated wastewater for agricultural irrigation**

**Speaker:** Dr. Nirit Bernstein, Institute of Soil, Water and Environmental Sciences, Volcani Center, Israel

**Time:** 11:00-11:40, July 15, 2013

**Location:** PLUM BLOSSOM ROOM (沁梅厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



## Abstract

The use of treated urban wastewater for irrigation in modern agricultural is steadily increasing world-wide and due to shortages of fresh water is common today in many regions throughout the world. Utilization of this water source for irrigation in the production fields is an environmentally sustainable approach, which incorporates the advantage of minimizing the disposal to the environment. Furthermore, irrigation with treated wastewater incorporate benefits to agricultural by reducing demands for fertilizers inputs as a result of the higher concentrations of macronutrients in this water. At the same time, inhibiting effects on the irrigated crops may source from the higher concentrations of salts, bicarbonate, boron, heavy metals, and pH level present in the treated wastewater. The use of treated wastewater for agricultural irrigation may result in human exposure to pathogens, creating potential public health problems. Although the concentration of human pathogens decreases during the wastewater reclamation process, the secondary treated effluents most commonly used for irrigation today still contain bacterial human pathogens. National and global regulations were developed and are applied to facilitate optimal and safe production under irrigation with treated wastewater.

## Oral Session

PLUM BLOSSOM ROOM (沁梅厅) 2<sup>nd</sup> Floor

Monday, July 15

ID	Paper Title	Speaker	Affiliation	Time
20057	Adsorption Characteristics of Zinc (Zn <sup>2+</sup> ) from Aqueous Solution by Natural Bentonite and Kaolin Clay Minerals: A Comparative Study	Sen Tushar Kanti	Curtin University	14:00-14:20
20059	Determination of Ambient Air Quality Guidelines	CHARLIER Corinne	University of Liege	14:20-14:40
20112	Effect of Combined Microwave-Ultrasonic Pretreatment on Anaerobic Biodegradability of Primary, Excess Activated and Mixed Sludge	Yeneneh Anteneh Mesfin	Curtin University	14:40-15:00
20119	Oil pollutants Degradation of Nano-MgO in Micro-polluted water	Meng-fu Zhu	Academy of Military Medical Sciences	15:00-15:20
20128	Silver Nanoparticle Adsorption to Soil and Water Treatment Residuals and Impact on Zebrafish in a Lab-scale Constructed Wetland	Ebeling Angela	Wisconsin Lutheran College	15:20-15:40
	<b>COFFEE BREAK</b>			<b>15:40-16:10</b>
20252	Digital Interactive Kanban Advertisement System using Face Recognition Methodology	Chu-Ja Chang	National Kaohsiung University of Applied Sciences	16:10-16:30
20121	Sources of Metals in Wet Precipitation Collected from the Detroit Area	Yiwei Deng	University of Michigan - Dearborn	16:30-16:50
20109	Valuing American options using fast recursive projections	Antonio Cosma	Université du Luxembourg	16:50-17:10

**ID:** 20057

**Title:** Adsorption Characteristics of Zinc (Zn<sup>2+</sup>) from Aqueous Solution by Natural Bentonite and Kaolin Clay Minerals: A Comparative Study

**Name:** Sen Tushar Kanti  
**Affiliation:** Curtin University  
**E-mail:** t.sen@curtin.edu.au

### **ABSTRACT**

Clay minerals are one of the potential good adsorbent alternatives to activated carbon because of their large surface area and high cation exchange capacity. In this work the adsorptive properties of natural bentonite and kaolin clay minerals in the removal of zinc ( $Zn^{2+}$ ) from aqueous solution have been studied by laboratory batch adsorption kinetic and equilibrium experiments. The result shows that the amount of adsorption of zinc metal ion increases with initial metal ion concentration, contact time, but decreases with the amount of adsorbent and temperature of the system for both the adsorbents. Kinetic experiments clearly indicate that adsorption of zinc metal ion ( $Zn^{2+}$ ) on bentonite and kaolin is a two-step process: a very rapid adsorption of zinc metal ion to the external surface is followed by possible slow decreasing intraparticle diffusion in the interior of the adsorbent. This has also been confirmed by an intraparticle diffusion model. The equilibrium adsorption results are fitted better with the Langmuir isotherm compared to the Freundlich model. The value of separation factor,  $R_L$  from Langmuir equation give an indication of favourable adsorption. Finally from thermodynamic studies, it has been found that the adsorption process is exothermic due to negative  $\Delta H^0$  accompanied by decrease in entropy change and Gibbs free energy change ( $\Delta G^0$ ). Overall bentonite is a better adsorbent than kaolin in the the removal of  $Zn^{2+}$  from its aqueous solution.

**ID:** 20059

**Title:** Determination of Ambient Air Quality Guidelines

**Name:** CHARLIER Corinne

**Affiliation:** University of Liege

**E-mail:** C.Charlier@chu.ulg.ac.be

### **ABSTRACT**

For each pollutant, criteria were based on adverse effects (threshold and non threshold effects) and were derived from international standards for ambient air quality set by each country to protect the public health. We will present the determination of ambient air quality guidelines in Belgium (walloon region). When european ambient air quality guidelines were not available, we have derived our criteria from other peer reviewed national or international standards.

**ID:** 20112

**Title:** Effect of Combined Microwave-Ultrasonic Pretreatment on Anaerobic Biodegradability of Primary, Excess Activated and Mixed Sludge

**Name:** Yeneneh Anteneh Mesfin

**Affiliation:** Curtin University

**E-mail:** anteneh.mesfinyeneneh@curtin.edu.au

### **ABSTRACT**

This work deals with the effect of combined microwave-ultrasonic pretreatment on the anaerobic biodegradability of primary, excess activated and mixed sludge. The characteristics, biodegradability and anaerobic digester performance for untreated primary, excess activated and mixed sludge were compared to combined microwave-ultrasonic

pretreated primary, excess activated and mixed sludge. All sludge samples were subjected to Microwave treatment at 2450 MHz, 800 W and 3 min followed by ultrasonic treatment at a density of 0.4 W/mL, amplitude of 90%, Intensity of 150W, pulse of 55/5 for 6min. Methane production in pretreated primary sludge was significantly greater (11.9ml/g TCOD) than the methane yield of the untreated primary sludge (7.9 ml/g TCOD). Cumulative methane production of pretreated Excess Activated Sludge (EAS) was higher (66.5 ml/g TCOD) than the methane yield from pretreated mixed sludge (44.1 ml/g TCOD). Furthermore, digested EAS showed significantly higher dewaterability (201s) than digested primary sludge (305s) or mixed sludge (522s). The average Methane: Carbondioxide ratio from EAS (1.85) was higher than that for mixed untreated sludge (1.24). VS reduction was also higher for EAS than the other two sludge types. However, pretreatment of EAS resulted in significant reduction in dewaterability due to higher percentage of fine floc particles in the pretreated EAS.

**ID:** 20119

**Title:** Oil pollutants Degradation of Nano-MgO in Micro-polluted water

**Name:** Meng-fu Zhu

**Affiliation:** Academy of Military Medical Sciences

**E-mail:** zmf323@163.com

### **ABSTRACT**

The removal of oil pollutants from water and purifying process of oil-polluted water are studied through catalytic degradation method with nano-MgO. The results indicated that catalytic degradation effect of nano-MgO on the oil pollutants was associated with dosage of nano-MgO, pH and water temperature. When oil content was 1.8 mg/L, 0.17g nano-MgO was used and the removal rate of oil was 93.92%. Furthermore, nano-Mgo was a non-photosensitive catalyst. GC/MS analysis showed that the amount of petroleum-based pollutants in water was reduced 73.77% from the previous 61 kinds to 16 kinds, and the total peak area was reduced 96.05% after catalytic degradation of nano-MgO. Therefore, nano-MgO has an excellent effect on the catalytic degradation of oil pollutants and can be applied in the treatment of oil wastewaters.

**ID:** 20128

**Title:** Silver Nanoparticle Adsorption to Soil and Water Treatment Residuals and Impact on Zebrafish in a Lab-scale Constructed Wetland

**Name:** Ebeling Angela

**Affiliation:** Wisconsin Lutheran College

**E-mail:** angela.ebeling@wlc.edu

### **ABSTRACT**

Nanoparticles (<100nm) are becoming more prevalent in residential and industrial uses and may enter the environment through wastewater. Although lab studies have shown that nanoparticles can be toxic to various organisms, limited research has been done on the effects of nanoparticles in the environment. Environmental conditions such as pH and ionic strength are known to alter the biotoxicity of nanoparticles, but these effects are not well understood. The objectives of this research were to determine the impacts of silver nanoparticles (AgNP) on zebrafish in the pseudo-natural environment of a lab-scale constructed wetland, and to investigate wastewater remediation through soil and water treatment residual (WTR) adsorption of AgNPs. Concurrently, the effect of particle size on AgNP sorption was examined. Researchers exposed adult zebrafish in a lab-scale constructed wetland to concentrations of AgNP ranging from 0-50 mg AgNP/L and compared them to negative controls with no

silver exposure and to positive controls with exposure to silver nitrate. The results suggest that aggregated AgNP do not impact zebrafish. Separately, sorption experiments were carried out examining three media - a wetland soil, a silt loam soil, and a WTR - in their capacity to remove AgNPs from water. The silt loam retained less AgNPs from solution than did the wetland soil or the WTR. In the WTR AgNPs were associated with sand size particles (2mm - 0.05mm), but in the wetland soil and silt loam, approximately half of the AgNPs were associated with the sand-sized particles, while the rest were associated with silt sized (~0.05mm) or smaller particles. The larger sorption capacity of the wetland soil and WTR was attributed to their higher carbon content. The sorption data indicate that AgNPs adsorbed to soil and WTRs and support the idea that natural and constructed wetlands can remove AgNPs from wastewater.

**ID:** 20252

**Title:** Digital Interactive Kanban Advertisement System using Face Recognition Methodology

**Name:** Chu-Ja Chang

**Affiliation:** National Kaohsiung University of Applied Sciences

**E-mail:** changchuja@hotmail.com

### **ABSTRACT**

Most of advertisement system is presently still launch the publicity content by the static words and pictures. Recently, this static advertisement model will not be able to attract people's attention more and more. Moreover, the static information content of advertisement system is limited because of the layout shown size. It can not also fully demonstrate the information content of advertisement system. In this paper, we develop a digital interactive kanban advertisement system using face recognition methodology to solve these problems. The system captures the person's face through the camera. The digital advertisement content size is relevant by the person and camera observation locations. In this paper, we adopt the Adaboost algorithm to judge people face, and the system only need grab the position of the face. The system doesn't built expensive and complex equipment to reduce the system cost and enhance the system performance. This system can also achieve the same similar digital interactive advertising effectiveness.

**ID:** 20121

**Title:** Sources of Metals in Wet Precipitation Collected from the Detroit Area

**Name:** Yiwei Deng

**Affiliation:** University of Michigan - Dearborn

**E-mail:** dengy@umich.edu

### **ABSTRACT**

Chemical composition of wet precipitation reflects local as well as regional air quality, and may help identify emission sources of air pollutants. In this study, snow and rain samples were collected in the Detroit area. The concentrations of forty-two metal species were determined using inductively-coupled mass spectrometry (ICP-MS). An enrichment factor ( $f$ ) for an element  $X$  relative to aluminum defined as  $(X_{\text{sample}} / Al_{\text{sample}}) \div (X_{\text{crust}} / Al_{\text{crust}})$  were calculated for the metals which were positively identified in the samples. Six metals (Cu, Zn, Se, Ag, Cd, Pb) had high enrichment factors ( $f > 100$ ), indicating that they likely had anthropogenic origins. Four metals (Na, Ca, Cr, Ni) had moderate enrichment factors ( $10 < f < 100$ ), indicating possible anthropogenic contributions. The remainder had low ( $f < 10$ ) enrichment factors, indicating that these metals came from natural sources.

**ID:** 20109

**Title:** Valuing American options using fast recursive projections

**Name:** Antonio Cosma

**Affiliation:** Université du Luxembourg

**E-mail:** antonio.cosma@uni.lu

## **ABSTRACT**

This paper introduces a new numerical option pricing method by fast recursive projections. The projection step consists in representing the payoff and the state price density with a fast discrete transform based on a simple grid sampling. The recursive step consists in transmitting coefficients of the representation from one date to the previous one by an explicit recursion formula. We characterize the convergence rate of the computed option price. Numerical illustrations with different American and Bermudan payoffs with discrete dividend paying stocks in the Black-Scholes and Heston models show that the method is fast, accurate, and general.

# The 5<sup>th</sup> International Conference on Computational Intelligence and Software Engineering (CiSE 2013)

## Conference Schedule

### Registration (July 14 – 15)

**Location:** 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 14, 14:00 - 17:00

July 15, 08:30 - 11:00

### Invited Speech Session (July 15, Morning)

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 08:30-09:50

➤ **Invited Speech:** Overview of Social Media Analytics and Its Business Applications

**Speaker:** Prof. Weiguo Fan, Virginia Polytechnic Institute and State University, USA

**Time:** 08:30-09:10

### Oral Session (July 15, Morning)

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 10:10-12:00

### Lunch & Dinner

**Location:** VISTA CAFÉ (雅景咖啡厅) 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 15, 12:00-13:30

June 15, 18:00-19:30



## Invited Speech Session

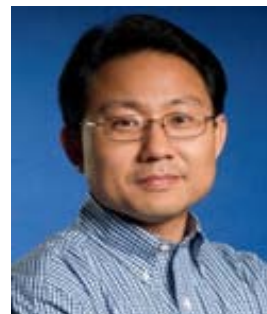
### Invited Speech: Overview of Social Media Analytics and Its Business

#### Applications

**Speaker:** Prof. Weiguo Fan, Virginia Polytechnic Institute and State University, USA

**Time:** 08:30-09:10, July 15, 2013

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### Abstract

In this talk, I will provide an overview of social media analytics. In particular, I will cover the needs for social media analytics, the underlying techniques for social media analytics, and some potential business applications. In the end, I will showcase a case study of using social media analytics for vehicle defect discovery.

## Oral Session

PEONY ROOM (牡丹厅)

2<sup>nd</sup> Floor, Monday, July 15

ID	Paper Title	Speaker	Affiliation	Time
20063	Clustering Student Discussion Messages on Online Forum by Visualization and non-Negative Matrix Factorization	Wei Lai	Swinburne University of Technology	09:10-09:30
20073	Mashup-technology in web-based GIS design	Pavel Senchenko	Tomsk State University of Control Systems and Radio Electronics	09:30-09:50
	<b>COFFEE BREAK</b>			<b>09:50-10:10</b>
20075	Development of a Client-Server System for 3D Scene Change Detection	Baowei Lin	Hiroshima University	10:10-10:30
20255	The Constrained Mean-Semivariance Portfolio Optimization problem with the Support of A Novel Multiobjective Evolutionary Algorithm	Liagkouras Konstantinos	University of Piraeus	10:30-10:50
20302	The application of book intelligent recommendation based on the association rule mining of Clementine	Lina Jia	Liao Ning Technical University	10:50-11:10
20333	Introducing Intelligent Agents Potential into a competent Integral Multi-Agent Sensor Network Simulation Architecture Design	Dimitrios Karras	Stereia Hellas Institute of Technology	11:10-11:30
20328	Using Optimized Distributional Parameters as Inputs in A Sequential Unsupervised and Supervised Modeling of Sunspots Data	Kassim Mwitondi	Sheffield Hallam University	11:30-11:50

**ID:** 20063

**Title:** Clustering Student Discussion Messages on Online Forum by Visualization and non-Negative Matrix Factorization

**Name:** Wei Lai

**Affiliation:** Swinburne University of Technology

**E-mail:** wlai@swin.edu.au

### **ABSTRACT**

The use of online discussion forum can effectively engage students in their studies. As the number of messages posted on the forum is increasing, it is more difficult for instructors to read and respond to them in a prompt way. In this paper, we apply non-negative matrix factorization and visualization to clustering message data, in order to provide a summary view of messages that disclose their deep semantic relationships. In particular, the NMF is able to find the underlying issues hidden in the messages about which most of the students are concerned. Visualization is employed to estimate the initial number of clusters, showing the relation communities. The experiments and comparison on a real dataset have been reported to demonstrate the effectiveness of the approaches.

**ID:** 20073

**Title:** Mashup-technology in web-based GIS design

**Name:** Pavel Senchenko

**Affiliation:** Tomsk State University of Control Systems and Radio Electronics

**E-mail:** pvs@tusur.ru

### **ABSTRACT**

The paper proposes an architectural model of web-based geographic information system based on mashup-technologies. Represented system is designed using the programming patterns and is used to control access rights to various functions or objects in the system.

**ID:** 20075

**Title:** Development of a Client-Server System for 3D Scene Change Detection

**Name:** Baowei Lin

**Affiliation:** Hiroshima University

**E-mail:** lin@eml.hiroshima-u.ac.jp

### **ABSTRACT**

In this paper, we present a client-server system for 3D scene change detection. A 3D scene point cloud which stored on the server is reconstructed by (structure-from-motion) SfM technique in advance. On the other hand, the client system in tablets captures query images and sent them to the server to estimate the change area. In order to find region of change, an existing change detection method has been applied into our system. Then the server sends detection result image back to mobile device and visualize it. The result of system test shows that the system could detect change correctly.

**ID:** 20255

**Title:** The Constrained Mean-Semivariance Portfolio Optimization problem with theSupport of A Novel Multiobjective Evolutionary Algorithm

**Name:** Liagkouras Konstantinos  
**Affiliation:** University of Piraeus  
**E-mail:** k\_liagkouras@hotmail.com

### **ABSTRACT**

The paper addresses the constrained mean-semivariance portfolio optimization problem with the support of a novel multi-objective evolutionary algorithm (n-MOEA). The use of semivariance as the risk quantification measure and the real world constraints imposed to the model make the problem difficult to be solved with exact methods. Thanks to the exploratory mechanism, n-MOEA concentrates the search effort where is needed more and provides a well formed efficient frontier with the solutions spread across the whole frontier. We also provide evidence for the robustness of the produced non-dominated solutions by carrying out, out-of-sample testing during both bull and bear market conditions on FTSE-100.

**ID:** 20302

**Title:** The Application of Book Intelligent Recommendation Based on the Association Rule Mining of Clementine

**Name:** Lina Jia  
**Affiliation:** Liao Ning Technical University  
**E-mail:** jelena1988@sina.cn

### **ABSTRACT**

The traditional library can't provide the service of personalized recommendation for users. This paper used Clementine to solve this problem. Firstly, model of K-means clustering analyze the initial data to delete the redundant data. It can avoid scanning the database repeatedly and producing a large number of false rules. Secondly, the paper used clustering results to perform association rule mining. It can obtain valuable information and achieve the service of intelligent recommendation.

**ID:** 20333

**Title:** Introducing Intelligent Agents Potential into a competent Integral Multi-Agent Sensor Network Simulation Architecture Design

**Name:** Dimitrios Karras  
**Affiliation:** Sterea Hellas Institute of Technology  
**E-mail:** dimitrios.karras@gmail.com

### **ABSTRACT**

During this research we spot several key issues concerning WSN design process and how to introduce intelligence in the nodes. Due to the nature of these networks, debugging after deployment is unrealistic, thus an efficient testing method is required. WSN simulators perform the task, but still code implementing node sensing and RF behaviour consists of layered and/or interacting protocols that for the sake of designing accuracy are tested working as a whole, running on specific hardware. Simulators that provide cross layer simulation and hardware emulation options may be regarded as the last milestone of the WSN design process. Especially mechanisms for introducing intelligence into the WSN decision making process but in the simulation level is an important aspect not tackled so far in the literature at all. The herein proposed multi-agent simulation architecture aims at designing a novel WSN simulation system

independent of specific hardware platforms but taking into account all hardware entities and events for testing and analysing the behaviour of a realistic WSN system. Moreover, the design herein outlined involves the basic mechanisms, with regards to memory and data management, towards Prolog interpreter implementation in the simulation level.

**ID:** 20328

**Title:** Using Optimized Distributional Parameters as Inputs in A Sequential Unsupervised and Supervised Modeling Of Sunspots Data

**Name:** Kassim Mwitondi

**Affiliation:** Sheffield Hallam University

**E-mail:** k.mwitondi@shu.ac.uk

## **ABSTRACT**

Detecting naturally arising structures in data is central to knowledge extraction from data. In most applications, the main challenge is in the choice of the appropriate model for exploring the data features. The choice is generally poorly understood and any tentative choice may be too restrictive. Growing volumes of data, disparate data sources and modelling techniques entail the need for model optimization via adaptability rather than comparability. We propose a novel two-stage algorithm to modelling continuous data consisting of an unsupervised stage whereby the algorithm searches through the data for optimal parameter values and a supervised stage that adapts the parameters for predictive modelling. The method is implemented on the sunspots data with inherently Gaussian distributional properties and assumed bi-modality. Optimal values separating high from lows cycles are obtained via multiple simulations. Early patterns for each recorded cycle reveal that the first 3 years provide a sufficient basis for predicting the peak. Multiple Support Vector Machine runs using repeatedly improved data parameters show that the approach yields greater accuracy and reliability than conventional approaches and provides a good basis for model selection. Model reliability is established via multiple simulations of this type.

# International Conference on Oncology and Therapy (COT 2013)

## Conference Schedule

### Registration (July 16 – 17)

**Location:** 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 16, 14:00 - 17:00

July 17, 08:30 - 11:00

### Invited Speech Session (July 17, Morning)

**Location:** ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 17, 08:30 - 09:50

- **Invited Speech:** Protein interactions underlying death receptor-mediated death inducing signaling complex in apoptosis

**Speaker:** Dr. Yuhua Song, The University of Alabama at Birmingham, USA

**Time:** 08:30-09:10

- **Invited Speech:** A New Class of Camptothecin Analogs: FL118 and its Analogs

**Speaker:** Dr. Fengzhi Li, Roswell Park Cancer Institute, USA

**Time:** 09:10-09:50

**Coffee Break**                      **09:50-10:10**

### Oral Session (July 17, Morning)

**Location:** ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 17, 10:10-11:30

### Lunch & Dinner

**Location:** VISTA CAFÉ (雅景咖啡厅) 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 17, 12:00-13:30

July 17, 18:00-19:30

## Invited Speech Session

### **Invited Speech: Protein interactions underlying death receptor-mediated death inducing signaling complex in apoptosis**

**Speaker:** Dr. Yuhua Song, The University of Alabama at Birmingham, USA

**Time:** 08:30-09:10, July 17, 2013

**Location:** ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### **Abstract**

This study aims at the investigation of the protein interactions underlying death receptor-mediated death inducing signaling complex (DISC) in apoptosis. Breast cancer affects an estimated 1.3 million women worldwide annually. Certain breast cancer types are resistant or become resistant to conventional chemotherapy. The use of targeted therapy for the controlled killing of cancer cells has become clinically desirable to sensitize breast cancer to anti-cancer drugs. Targeting the death receptor-mediated apoptotic signaling could be a potential strategy for breast cancer treatment. We characterized the interactions between calmodulin (CaM) and death receptor 5 (DR5) and determined the role of CaM and DR5 binding in DR5-mediated DISC formation in breast cancer cells with experimental approaches. We determined the structural and thermodynamics basis for the role of CaM and Fas binding in Fas-mediated DISC formation using computational approaches. The results provide the molecular and structural basis regarding the interaction between CaM and death receptor and its role in regulating DISC formation in apoptosis, presenting a potential site for cancer chemotherapeutics.

### **Invited Speech: A New Class of Camptothecin Analogs: FL118 and Its Analogs**

**Speaker:** Dr. Fengzhi Li, Roswell Park Cancer Institute, USA

**Time:** 09:10-09:50, July 17, 2013

**Location:** ORCHID ROOM (雅兰厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### **Abstract**

A novel small chemical molecule (designated FL118) has been recently identified using high throughput screening and hit-lead analysis. Our studies showed that FL118 selectively inhibits the expression of multiple anti-apoptotic proteins (survivin, Mcl-1, XIAP and cIAP2), while showing no inhibitory effects on control genes. Irinotecan/SN38 and topotecan, two camptothecin analogs currently used for cancer treatment in the clinic, showed at least 10-time less effects in the inhibition of FL118 target gene expression. Furthermore, mutations of topoisomerase 1 (Top1) in cancer cells significantly increase topotecan resistance, while Top1 mutation showed little negative effects on FL118 efficacy. This suggests that although FL118 structurally has similarity to topotecan and irinotecan/SN38, FL118 has unique mechanism of action that is different from these used by topotecan and

irinotecan/SN38.FL118 showed superior antitumor activity in mouse models of human colon and head-&-neck tumor xenografts with a weekly x 4 schedule in a Tween 80-containing formulation via intraperitoneal (IP) routes(PLOS ONE. 2012, 7: e45571). In order to move FL118 into clinical trial, a Tween 80-free intravenous (IV) formulation has been developed. The vivo experiments revealed that FL118 in the IV-compatible new formulation increased its maximum tolerated dose (MTD) for 3-7 fold and shifted its therapeutic index (TI) from 2 into 5 in comparison with its Tween 80 -containing IP formulation. This finding not only moves FL118 into an even safer anticancer drug but also extends FL118 into much wider potential clinical application.FL118 in the new formulation is IV-compatible and eliminates different types of human tumor in animal model via different drug administration schedules.Recent pharmacokinetics (PK) studies revealed that IV-administrated FL118 is rapidly cleared in blood and accumulated in tumor, which may contribute to FL118 low toxicity to animals and high efficacy to tumor. Furthermore, FL118 effectively overcome topotecan resistance tumor, which provides a potential new combination regimen that involves the initial application of topotecan, then FL118 can be used after tumor acquires topotecan resistance. To minimize the risk of FL118 development for clinical application of cancer treatment, in parallel of these FL118 studies, a medicinal chemistry program is under the way. We have already identified several promising FL118 analogs to enrich our anticancer drug development pipeline in case, at any stages a FL118 analog may be further developed for clinical use, instead of FL118. However, currently FL118 has already passed several critical hurdles, and all available evidences indicate FL118 is a highly promising anticancer molecule for moving into clinical trials.

## Oral Session

ORCHID ROOM (雅兰厅)

2<sup>nd</sup> Floor, Wednesday, July 17

ID	Paper Title	Speaker	Affiliation	Time
20096	Candidate Molecules And Ki-67/MIB1 as Novel Diagnostic Biomarker for Human Uterine Mesenchymal Tumors	Hayashi Takuma	Shinshu University School of Medicine	10:10-10:30
20251	Quality Assurance (QA) in Radiation Therapy	Lanchun Lu	The Ohio State University	10:30-10:50
20224	Acrolein Induce Epigenetic Enzyme at Distinct Time and Concentration Wind	An-Soo Jang	Soonchunhyang University Bucheon Hospital	10:50-11:10
20230	Extracellular Signal-Regulated Kinase is Upregulated in Hypospadiac Rats by Maternal Exposure to Di-(2-Ethylhexyl) Phthalate	Ming Yong Li	University of South China	11:10-11:30

**ID:** 20096

**Title:** Candidate Molecules And Ki-67/MIB1 as Novel Diagnostic Biomarker for Human Uterine Mesenchymal Tumors

**Name:** Hayashi Takuma

**Affiliation:** Shinshu University School of Medicine

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### ABSTRACT

Human uterine leiomyosarcoma (LMS) develops more often in the muscle tissue layer of the uterine body than in the uterine cervix. The development of gynecologic tumors is often correlated with female hormone secretion; however,

the development of uterine LMS is not substantially correlated with hormonal conditions, and the risk factors are not yet known. Importantly, a diagnostic-biomarker, which distinguishes malignant uterine LMS from benign tumor leiomyoma (LMA), is yet to be established. Accordingly, it is necessary to analyze risk factors associated with uterine LMS, to establish a clinical treatment method. Proteasome b-ring subunit LMP2/b1i-deficient mice spontaneously develop uterine LMS, with a disease prevalence of ~40% by 14 months of age. We found LMP2/b1i expression to be absent in human uterine LMS, but present in human LMA. Therefore, defective-LMP2/b1i expression may be one of the risk factors for human uterine LMS. LMP2/b1i is a potential diagnostic-biomarker under the combination of candidate molecules, for instance cyclin B1, cyclin E and calponin h1 and ki-67/MIB1 counts for uterine mesenchymal tumors, especially human uterine LMS, and may be a targeted-molecule for a new therapeutic approach.

**ID:** 20251

**Title:** Quality Assurance (QA) in Radiation Therapy

**Name:** Lanchun Lu

**Affiliation:** The Ohio State University

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### **ABSTRACT**

Radiation therapy is one of the most important modalities of cancer treatments. The complex non-invasive treatment procedure involves not only human resources, such as radiation oncologists, medical physicists, dosimetrists, therapists, nurses, and engineers, but also modern high technique facilities, such as the machines to deliver radiation beams, computers to perform treatment simulation, CT or MRI to acquire images, etc. To guarantee a successful radiation treatment, a good quality assurance (QA) program is essential and mandated. In this abstract, I will introduce the general QA components in radiation therapy, and the major procedures and methods to perform these QAs.

**ID:** 20224

**Title:** Acrolein Induce Epigenetic Enzyme at Distinct Time and Concentration

**Name:** An-Soo Jang

**Affiliation:** Soonchunhyang University Bucheon Hospital

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### **ABSTRACT**

Background: Acrolein (2-propenal) is a highly reactive  $\alpha$ ,  $\beta$ -unsaturated aldehyde and a respiratory irritant that is ubiquitously present in the environment but that can also be generated endogenously at sites of inflammation. The epigenetic effect to acrolein exposure needs to be determined. Objective: This study aimed to determine aberrant expression of DNMT1, DNMT3b, MBD1-4, HDAC3, and MECP2 in Ea.hy926 cell line exposed to acrolein. Methods: Ea.hy926 cell lines were exposed to acrolein 30nm, 300nm for 1h, 2h, and 4h. Epigenetic enzyme such as DNMT1, DNMT3b, MECP2, HDAC3, and MBD1-4 were quantified in the cell line using real time PCR. Results: After acrolein 30 nm exposure, MBD1 and MBD 4 were increased compared to controls at 4h, MBD3 was decreased at 1h, 2h, and 4h. DNMT1 and DNMT3b were increased at 1h and 4h but decreased at 2h compared to controls. MECP2 was increased at 1h, 2h, and 4h compared to controls. After acrolein 300 nm exposure although MBD1-4, DNMT1, DNMT3b, MECP2, and HDAC3 were decreased compared to controls at 1h, those enzyme were increased compared to controls at 4h. Conclusion: These findings demonstrate that acrolein exposure modify MBD 1, 3, 4 and DNMTs and MECP2 enzyme related to epigenetics, suggesting that acrolein contribute to enzyme pathway involved in epigenetic regulation.



**ID:** 20230

**Title:** Extracellular Signal-Regulated Kinase is Upregulated in Hypospadiac Rats by Maternal Exposure to Di-(2-Ethylhexyl) Phthalate

**Name:** Ming Yong Li

**Affiliation:** University of South China

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## **ABSTRACT**

Background: Hypospadias is one of the most common congenital anomalies characterized by abnormalities of the urethra and foreskin, but its etiology is largely uncharacterized. Di-(2-ethylhexyl) phthalate (DEHP), one important source of white pollution or so-called industrial plasticizers, are demonstrated can establish hypospadiac rat model with a suitable dosage of 750 mg/kg body weight/day in our previous study. Objective: To investigate the expression of extracellular signal-regulated kinase 1/2 in hypospadiac penis of fetal rats induced by maternal exposure to DEHP compared with that in normal penis. Methods: 40 timed-pregnant rats were given DEHP by gastric intubation at doses of 0 (soybean oil, normal control group), 750 mg/kg body weight/day from gestation day (GD) 12 to 19. In each group, half of them (10 rats) were raised to postnatal day (PND) 30, and live male pups were counted, weighed and their anogenital distance (AGD) were measured, and the hypospadias was observed. The left (10 rats) were caesarean delivered on GD 20, and fetal rats penis were collected to assess the expression of total and phosphorylated ERK1 and ERK2 at the mRNA and protein level by using real-time quantitative polymerase chain reaction and immunohistochemistry. Results: In DEHP group, the incidence of hypospadias was 30.6%. Compared with normal control group, the reproductive lesions like reduced anogenital distance (AGD), AGD/body weight and numbers of live male pups were observed. The expression of ERK1 and ERK2 mRNA in the fetal rat penis of DEHP group increased significantly (both  $P < 0.05$ ). Total ERK1/2 protein showed no significant difference between DEHP-exposure group and normal controls. However, phosphorylated ERK1/2 proteins exhibited a much wide and rich expressions in the preputial subcutaneous mesenchymal cell layers in DEHP-exposure group, while there were not any positive expressions in normal controls. Conclusions: Our findings indicate the external genitalia teratogenic toxicity on male offspring rats induced by maternal exposure to DEHP. And also suggest ERK upregulation might contribute to the development of hypospadias and might associated with spatial regulation abnormality in the process of external male genitalia development.

# The 4<sup>th</sup> Conference on Web Based Business Management (WBM 2013) & The 2<sup>nd</sup> Quantitative Economics Conference (QEC2013)

## Conference Schedule

### Registration (July 16 – 17)

**Location:** 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 16, 14:00 - 17:00

July 17, 08:30 - 15:00

### Invited Speech Session (July 17, Morning)

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 17, 08:30 - 10:30

- **Invited Speech:** Efficient decision making model under the tradable permits system

**Speaker:** Prof. Xiaomei GUO, Xiamen University, China

**Time:** 08:30-09:10

- **Invited Speech:** A Model of Development and Growth

**Speaker:** Dr. Prabir Bhattacharya, Heriot-Watt University, UK

**Time:** 09:10-09:50

- **Invited Speech:** Risk curve and portfolio selection

**Speaker:** Prof. Xiaoxia Huang, University of Science and Technology Beijing, China

**Time:** 09:50-10:30

**Coffee Break**                      **10:30-10:50**

### Oral Session (July 17, Morning & Afternoon)

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel

**Time:** July 17, 10:50-12:00

### Lunch & Dinner

**Location:** VISTA CAFÉ (雅景咖啡厅) 1<sup>st</sup> Floor, Beijing Yanshan Hotel

**Time:** July 17, 12:00-13:30 & July 17, 18:00-19:30

## Invited Speech Session

### Invited Speech: Efficient decision making model under the tradable permits system

**Speaker:** Prof. Xiaomei GUO, Xiamen University, China

**Time:** 08:30-09:10, July 17, 2013

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### Abstract

The tradable permits system, a market based environmental policy, is being introduced in conservation of environment. Under this system, emitters are given much flexibility in decision making. Types of strategies and emission reductions and permit trading behavior for emitters are discussed in this paper, and an economic analysis of the efficient decision making model is given. Suggestions are given based on the results of the discussion of the model.

### Invited Speech: A Model of Development and Growth

**Speaker:** Dr. Prabir Bhattacharya, Heriot-Watt University, UK

**Time:** 09:10-09:50, July 17, 2013

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### Abstract

This paper first sets out a model of a developing country and then shows how, with minor modifications, the model can be generalized to apply to a developed country as well. Open economy features are then introduced into the model and issues relating income distribution are addressed. The final section of the paper examines the issues of optimal growth in the context of the model developed in the paper.

### Invited Speech: Risk curve and portfolio selection

**Speaker:** Prof. Xiaoxia Huang, University of Science and Technology Beijing, China

**Time:** 09:50-10:30, July 17, 2013

**Location:** PEONY ROOM (牡丹厅) 2<sup>nd</sup> Floor, Beijing Yanshan Hotel



#### Abstract

Portfolio selection discusses the problem of how to allocate one's capital to a large number of securities so that the investment can bring one a most profitable return. In the past, variance, semivariance, and probability of an adverse outcome are the most popular mathematical definitions of risk in the area. Variance and semivariance both measure a

portfolio risk by measuring variability of the portfolio return, while probability of an adverse outcome measures chance of a loss event. These definitions of risk reflect people's different understanding towards risk. However, in reality, people understand risk in other way too. Though some people may only be sensitive to one preset disastrous loss level and regard the probability of this bad case as risk, other people may concern all the possible loss levels and the corresponding occurring probabilities. It is a common phenomenon that when an investor makes one's risk-taking or risk-avoiding decision, one is actually weighing every severity level of the potential loss and the occurring probability of this loss. In this lecture I'll introduce such an alternative risk measurement called risk curve and present some new portfolio selection models based on this new risk measurement.

## Oral Session

PEONY ROOM (牡丹厅)

2<sup>nd</sup> Floor, Wednesday, July 17

ID	Paper Title	Speaker	Affiliation	Time
20116	Performance Measurement of the Fourth Party Logistics Providers	Yu-Wei Chang	Aletheia University	10:50-11:10
20181	The Impact in Customs Efficiency of the ITSW: Mexico Case of Study	Zamora-Torres America	Universidad Michoacana de San Nicolás de Hidalgo	11:10-11:30
20090	Assessing Some Determinants of the Regional Patenting: An Essay from the Mexican States	German-Soto Vicente	Universidad Autonoma De Coahuila	11:30-11:50
20117	Comparing the Effects of CAFTA on Internal Trade of China and ASEAN Countries	Supriana Tavi	University of Sumatera Utara	14:00-14:20
20085	The "Tullock Contest" Model of a Split-Award Statute and Settlement	Daisuke Mori	Kumamoto University	14:20-14:40
20266	Profitability and Stock Returns in a Production-Based Asset Pricing Model with Decreasing Returns to Scale	Li Gu	Federal Reserve Board	14:40-15:00
20249	Necessary and sufficient conditions for identification and estimability of linear parameters	Xin Liang	McGill University	15:00-15:20
20064	Does the Post-2000 Oil Price Change Reflect Market Fundamentals or Speculation?	Bwo-Nung Huang	Chung Cheng University	15:20-15:40
				<b>15:40-16:00</b>
20054	The Learning Effectiveness of 3D Tour-Guide Training Courses	YuFen Chen	Chihlee Institute Of Technology	16:00-16:20
20018	Impact of Quality Management Practices in Product Development Process	Bingwen Yan	Cape Peninsula University of Technology	16:20-16:40
20270	Aggregate Market Volatility in Asset Pricing	Yihui Lan	The University of Western Australia	16:40-17:00
20309	Economic Transition and Behavior of Prices: Micro-Level Evidence from China	Ding Ding	SIM University	17:00-17:20
20101	Brand Communication Strategy of Social Network Games—Study of Advertising Placement, Brand Experience, and Advertising Effectiveness	Pei-Fen Li	Ming Chuan University	17:20-17:40

**ID:** 20116

**Title:** Performance Measurement of the Fourth Party Logistics Providers

**Name:** Yu-Wei Chang

**Affiliation:** Aletheia University

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### **ABSTRACT**

This paper presents a multicriteria decision making method (MCDM) method to evaluate the performance of the fourth -party logistics providers. The four indexes of balanced scorecard (BSC) are used as the evaluation indexes. AHP (analytical hierarchy process) is used for rating the weights of criteria and alternatives. MCDM method of SAW (Simple Additive Weighting) is used for ranking the companies. Results show that the approach is applicable for the performance measurement problem.

**ID:** 20181

**Title:** The Impact in Customs Efficiency of the ITSW: Mexico Case of Study

**Name:** Zamora-Torres America

**Affiliation:** Universidad Michoacana de San Nicolás de Hidalgo

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### **ABSTRACT**

The evolution and grow of international trade has made more important and complex the task assigned to customs services. Now day' s customs administration is a relevant regulatory operator in international trade as facilitator and accelerator of trade. However, the study of efficiency on the public sector is more complex than the study of efficiency in the private, profit-oriented sector. Due to, public sector efficiency can be defined as capacity to achieve goals instead of perceive profits. The aim of this research is to identify those areas which yield the greatest cost/efficiency gains from the implementation of the e-service system International Trade Single Window (ITSW) and to note the obstacles or disadvantages present on the implementation of the ITSW in Mexico as a case of study. The findings point out that, according with the first result of the implementation of the ITSW Mexico has made good progress related to the efficiency of international trade procedures, simplifying the flow of information between traders and customs administration and reducing the time in customs clearance in 20 %.

**ID:** 20090

**Title:** Assessing Some Determinants of the Regional Patenting: An Essay from the Mexican States

**Name:** German-Soto Vicente

**Affiliation:** Universidad Autonoma De Coahuila

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### **ABSTRACT**

The aim of this work is to study the environment that affects and influences in the creation of regional patents. With this purpose the patenting process is modeled as dynamic one where, beside other factors, its past values contribute to create synergies to continue patenting in a feedback process. Using a dynamic panel data estimator we find that past patenting level trends to encourage the actual one. Also, a positive and significant effect of education, university expenditure, population density and industrial concentration on patents is reported in the Mexican states set.

Conclusions highlight that agglomeration forces are the main factor for patenting, followed by university expenditure and industrial concentration.

**ID:** 20117

**Title:** Comparing the Effects of CAFTA on Internal Trade of China and ASEAN Countries

**Name:** Supriana Tavi

**Affiliation:** University of Sumatera Utara

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### **ABSTRACT**

This paper compares the effects of CAFTA on internal trade of China and ASEAN Countries. ASEAN countries are analyzed individually, by developing two gravity models and using the panel data of 7 samples countries and areas from 2002 to 2010. The empirical result shows that GDP, distance, exchange rate, population and policy framework of CAFTA are trade determinant factors for China and ASEAN countries. Effects of CAFTA implementation in this study can be divided in four categories. Firstly, positive and significant effect. Singapore and Malaysia are gaining this effect. Secondly, positive effect but not significant, China and Thailand are gaining this effect. Thirdly, negative but not significant. Indonesia is having negative but not significant effect. Fourthly, negative and significant. Philippines is having this effect. Negative effect is happened to Indonesia and Philippines, not significant for Indonesia, but significant for Philippines. These two countries are getting less compare to other ASEAN countries. The rank of ASEAN countries that receive the greatest effect of CAFTA to the smallest one, that is: Singapore, Malaysia, Thailand, Indonesia and the last Philippines and this result is similar with the rank of countries Total Factor Productivity (TFP) growth rate.

**ID:** 20085

**Title:** The "Tullock Contest" Model of a Split-Award Statute and Settlement

**Name:** Daisuke Mori

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### **ABSTRACT**

We develop the economic model of a split-award statute, whereby a state takes a fraction of any punitive damages award. In a 1995 paper, Kahan and Tuckman argue that a split-award statute sometimes makes parties' settlement more difficult but it sometimes makes parties' settlement easier. They also examine agency problems between a contingent fee lawyer and a plaintiff under a split-award statute. They use a complete information model to analyze the relationship between a split-award statute and settlement. Subsequent papers adopt incomplete information models to extend their analysis. In contrast, based on a simple complete information model, we get different results from Kahan and Tuckman's. We reveal that a split-award statute always makes parties' settlement easier when we use "the Tullock contest function". We also discuss the impact of agency problems on settlement under this model.

**ID:** 20266

**Title:** Profitability and Stock Returns in a Production-Based Asset Pricing Model with Decreasing Returns to Scale

**Name:** Li Gu

**Affiliation:** Federal Reserve Board

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## **ABSTRACT**

Production decisions provide a credible indicator of future costs of capital perceived by corporate insiders and so may forecast future stock returns. We find theoretically that, under decreasing returns to scale, investment returns correlate imperfectly with stock returns and that higher profitability and traditional value are both associated with higher chosen risk exposure. Capital investment and utilization predict profitability and future returns. Empirically, utilization approximated by normalized real electricity usage has clear forecast power for returns complementing the known forecast power of investment. In addition, book-to-market ratios forecast returns, with predicted exceptions. The production-based model with decreasing returns predicts costs of capital better than traditional asset pricing models.

**ID:** 20249

**Title:** Necessary and sufficient conditions for identification and estimability of linear parameters

**Name:** Xin Liang

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## **ABSTRACT**

We study the relationship between estimability and identifiability of linear parameters in partially linear models. A model is partially linear for the parameter vector  $b$  if the conditional distribution of the data given  $X$  depends on  $b$  through  $Xb$ , where  $X$  is a known matrix. We focus here on situations where  $X$  may not have a full-column rank, and  $Xb$  can be interpreted as an identifiable parameter. Besides linear regressions, partially linear models include several widely used statistical models: generalized linear models and linear mixed models, median regression, quantile regressions, various discrete choice models (such as probit and Tobit models), single index models, etc. We observe that usual conditions for parameter estimability in linear regressions *a fortiori* in partially linear models are not necessary for identification, so estimability is not equivalent to identifiability. In the context of a general likelihood model (which may not be partially linear), we give a necessary and sufficient condition for identification of a transformation of model parameters. The proposed partial identification condition involves a general form of (potentially nonlinear) separability. This result is then applied to characterize the identification of an arbitrary vector  $Qb$  in a partially linear model. Several equivalent partial identifiability conditions are provided, and close-form representations are provided for the corresponding identification sets as linear subspaces of the parameter space. The proposed identifiability conditions include a number of easily interpretable conditions not previously supplied in the literature on estimability in linear regression.

**ID:** 20064

**Title:** Does the Post-2000 Oil Price Change Reflect Market Fundamentals or Speculation?

**Name:** Bwo-Nung Huang

**Affiliation:** Chung Cheng University

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## **ABSTRACT**

Sommer et al. (2005) suggest post-2000 oil price increases can be attributed to pent-up demand from previous recessions in tandem with strong demand from developing countries (e.g., China). However, some research results point out that crude oil price increase is not due to change in the fundamentals. Rather as Cifarelli and Paladino (2010)

illustrated, that it was due to large investment funds that poured into the commodity markets: \$260 billions as of mid-2008 as compared with \$13 billion in 2003. Consequently, commodity prices (including oil) went through the roof. In particular Cifarelli and Paladino (2010) pointed out that only commercial operators were allowed to purchase oil in the past. However, Commodity Futures Trading Commission, CFTC) of the US allowed financial companies to buy oil starting 1991. Generally speaking, a financial company purchases crude oil for speculation purpose. Given these two factors, is it true that post-2000 oil price increase can be attributed to speculative behavior instead of maladjustment between demand and supply or fundamentals? The purpose of this paper is to determine if the post-2000 oil price increase reflects the speculation or maladjustment of fundamental economic conditions. In this paper, we build an econometric model in which unexpected oil price change (or related to fundamentals) is calculated. By applying the Granger causality model, we can test if numbers of open interest (de-trended) in the futures market of crude oil and unexpected oil price change have any causal relationship? Using data from March 1983 through August 2012, we find (i) unexpected oil price change leads number of open interest (ii) number of open interest does not lead unexpected oil price change. We fail to find number of open interest leads unexpected oil price change. It suggests speculative behavior in the oil market is not a primary reason for the post-2000 price increase. In contrast, the price increase is the result of continuous influx of investment capital in the futures market. It suggests that majority of investors in the futures market of crude oil follow the trend of futures prices.

**ID:** 20054

**Title:** The Learning Effectiveness of 3D Tour-Guide Training Courses

**Name:** YuFen Chen

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## **ABSTRACT**

This study examined the learning effectiveness of a training course with 3D tourist sites (3D-STs) and surveyed the trainees' views in order to understand their perspectives on 3D-STs. In addition to self-developed 3D-STs, a test, a questionnaire, and a follow-up interview were conducted to collect data for analysis. The results outlined four dimensions of 3D-STs: interface and situation, tool and function, communication mechanism, and overall satisfaction. The results showed that (1) there was a significant difference between trainee pretests and posttests with regard to concepts; (2) there was a significant difference in the perspectives on 3D-STs of male and female trainees before and after the experiment.

**ID:** 20018

**Title:** Impact of Quality Management Practices in Product Development Process

**Name:** Bingwen Yan

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## **ABSTRACT**

The purpose of this study was to investigate and identify a suitable and a universally tested NPD management model that could be implemented at a local plastic packaging and load securing company in the Western Cape, South Africa. The impact of quality management practices as a major concern in this company's New Product Development (NPD) process was investigated. A combination of qualitative and quantitative research approaches was employed. Both management (n1=5) the staff members (n2=24) who are involved in the NPD process were selected as samples. A



semi-structured questionnaire and several interviews (in-depth and focused group) were utilized for data collection. A statistical program (SPSS V20) was employed to generate descriptive statistical results and test the reliability of all the variables. The results indicate that the company should establish a NPD gate control system in order to manage quality of its NPD process more effectively. In essence, the paper provides awareness that, although NPD is a risky and costly process, when NPD process is structurally managed, it becomes an advanced process that would provide any company with competitive edge over its competitors.

**ID:** 20270

**Title:** Aggregate Market Volatility in Asset Pricing

**Name:** Yihui Lan

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### **ABSTRACT**

A recent strand of the asset pricing literature has been devoted to assessing whether stock market volatility is priced in the cross-section of stock returns. Using Cochrane's (2005) managed-portfolio approach in the Fama and MacBeth (1973) framework, this paper contributes to this literature by simultaneously modelling conditional information and the asymmetric effects of the market volatility factor. The conditional information set that we consider incorporates both market-wide information as well as characteristics of test assets. Using the VIX index as a proxy for aggregate market volatility, we find that the price of market volatility risk is negative when volatility is increasing and it is less negative when volatility is decreasing. We use Chen (1973) to conduct tests for non-nested models. Our results are robust to the usage of either individual stocks or stock portfolios as test assets, different sub-periods, and different combinations of conditional information.

**ID:** 20309

**Title:** Economic Transition and Behavior of Prices: Micro-Level Evidence from China

**Name:** Ding Ding

**Affiliation:** SIM University

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### **ABSTRACT**

The development of price system guides interaction among consumers and producers. Since 2004, micro-data on prices have been obtained in numerous countries. In comparison to the well-documented micro-level findings in the US and European countries, this study provides new evidence on the behavior of prices in the transitional economy of China. We use a new micro data set to provide some facts on the behavior of prices in China 1989-2012. We will look at duration of prices, the size of price changes, synchronization of price changes as well as the effects of expected and unexpected inflation on relative price variability, in both coastal and inland regions. These data provided information on price adjustment at the firm/store level which is crucial for the understanding of real effects of nominal shocks. The addition of China to the set of countries is important as there is extensive evidence on price behaviour in developed, stable market economies, but not much otherwise. The Chinese data are unique in that they provide information on price behaviour in a developing economy undergoing transition to market. They are also important given the role of China in the world economy.

**ID:** 20101

**Title: Brand Communication Strategy of Social Network Games—Study of Advertising Placement, Brand Experience, and Advertising Effectiveness**

**Name:** Pei-Fen Li

**Affiliation:** Ming Chuan University

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**ABSTRACT**

In recent years, with the new advances in technology and changes of consumer media habits, the forms and functions of mass media have been changed by alternative media. The increasing importance of alternative media can be attributed to the emergence of digital technologies and social media, such as Facebook, Blogs, and Twitter. In order to reach more target audiences and create successful marketing plan, many companies and marketers have embraced new marketing strategies by incorporating social media platforms, product placement, and branded entertainment. Due to the rapid growth of social media and online games, social game advertising have increased in popularity with its high interactivity, brand engagement, and social networking features. In order to better understand how to maximize the effectiveness of social game advertising, this study examines the effects of different advertising placements of social network games and the user's brand experience on advertising effectiveness. The study proposes that different advertising placements of social games, including around game and in-game advertising, have an impact on the advertising effectiveness. This study is a two-phase research. The pre-test results indicate that around game advertising has an impact on the advertising effectiveness of less famous and low involvement brands. Also, around game advertising tends to have a more significant influence on advertising recall of famous brands; and in-game advertising influences advertising recall of less famous and low involvement brands. Moreover, around game advertising is more effective in building advertising recognition for all these tested brands. The second phase of research explores the interacting influence of brand experience and various advertising placements on the advertising effectiveness of social network games. Theoretical and managerial implications of findings are also discussed.

## **Instructions for Presentations**

### **Devices Provided by the Conference Organizing Committee:**

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

### **Materials Provided by the Presenters:**

- PowerPoint or PDF files

### **Duration of each Presentation:**

- Oral Presentation: 15 - 20 Minutes of Presentation, 5 Minutes of Q & A
- Plenary Speech: 30 - 40 Minutes of Presentation, 5 Minutes of Q & A

## Hotel Information

### About Hotel

Located in Beijing's Zhongguancun Hi-tech Zone, the "Silicon Valley of China", Beijing Yanshan Hotel is in the neighbourhood of the North Third Ring Road and the Zhongguancun Street with convenient transport to the Capital Airport, Beijing Railway Station, National Library, Beijing TV Station and Shangdi Information Industry Base. Peking University, Qinghua University, Renmin University and many other famous universities as well as scientific and technical institutions are all in the vicinity. The Summer Palace and Yuanmingyuan — China's ancient royal gardens can be reached in several minutes' drive.

**Address:** No.38 A, Zhongguancun Street, Haidian District, Beijing

中国北京市海淀区中关村大街甲38号 (100086)

**Homepage:** <http://www.yanshanhotel.com/>

**Telephone:** (+86) 10 62563388

**Facsimile:** (+86) 10 62568640

### How to Get to the Hotel

Please show the following message to the taxi driver if you cannot speak Chinese:

**请送我到:** 北京市海淀区中关村大街甲38号燕山大酒店

## Contact Us

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E-mail: [workshop\\_July@engii.org](mailto:workshop_July@engii.org)

