

出國報告（出國類別：國際會議）

參加 2016 International Conference on
Applied System Innovation (ICASI 2016)
研討會

服務機關：國立高雄應用科技大學

姓名職稱：劉健群助理教授

派赴國家：日本

出國期間：2016.05.28-2016.06-01

報告日期：2016.06.30

摘要

這次出差主要參加 2016 The IEEE 2016 International Conference on Applied System Innovation (ICASI 2016) 研討會在日本，本次會議有收到 1063 篇的投稿論文，其中接受 500+篇的學術論文於會中發表，其中來自台灣、日本、美國等國家。本會議的兩場 Keynote 演講多數與產業界具有高度關聯，其中材料科學及工程領域研究、通訊科學與工程涵蓋高頻電路設計、電腦科學與資訊技術、電子與電機領域、綠能與結構工程、創新設計、工業設計及設計理論、人文及創造研究、應用數學、管理科學。個人擔任 section chair(008)，及發表文章，藉由本次的機會更加瞭解相關領域的學術單位，目前的研究主題與方向，藉此帶動國內學界的學術升級，以及進步。

關鍵詞：電腦科學與資訊技術、電子與電機。

目次

一、目的.....	1
二、過程.....	3
三、心得及建議事項.....	11
附錄.....	12

一、目的

本次出差主要擔任研討會的section chair(008)，及發表文章，共計有407篇的論文在這次研討會中發表，研討會包含有幾個研究主題探討，涵蓋重要研究工程領域如下：

- (A) **Material Science & Engineering;**
- (B) **Communication Science & Engineering;**
- (C) **Computer Science & Information Technology;**
- (D) **Computational Science & Engineering;**
- (E) **Electrical & Electronic Engineering;**
- (F) **Mechanical & Automation Engineering;**
- (G) **Green Technology & Architecture Engineering**
- (H) **Innovation Design & Creative Design;**
- (I) **Industrial Design & Design Theory;**
- (J) **Cultural & Creative Research;**
- (K) **Applied Mathematics;**
- (L) **Management Science;**
- (M) **Others.**

以上各主題收錄該領域最新發展技術及其應用，包含從原理、模擬、實驗、及量測都有個研究群深入討論。

二、過程---會議議程



**International Conference on
Applied System Innovation**
Okinawa, Japan, May 28-Jun 1, 2016



Conference Agenda

Venue: Okinawa Convention Center, 4-3-1 Mashiki, Ginowan City Okinawa 901-2224, Japan

Language: English

Pre-Conference Schedule		
Saturday, May 28, 2016		
2:00pm	6:00pm	Sponsor Showcase (Grand Ballroom)
4:00pm	8:00pm	Early Conference Registration and Conference Information Collection (Reception Hall)

Main-Conference Schedule		
Sunday, May 29, 2016		
8:00am	9:00am	Conference Registration and Conference Information Collection (International Conference Room, Building A1)
9:00am	10:00am	Opening Ceremony (International Conference Room, Building A1)
10:00am	10:50am	Keynote Speech 1 (International Conference Room, Building A1)
10:50am	11:10am	Coffee Break
11:10am	12:00am	Keynote Speech 2 (International Conference Room, Building A1)
12:10am	1:30pm	Lunch (Ballroom)
1:30pm	5:30pm	Poster session of ICASI 2016, P1, P2, P3, P4
1:30pm	2:20pm	Keynote Speech 3 (International Conference Room, Building A1)
2:30pm	3:20pm	Keynote Speech 4 (International Conference Room, Building A1)
1:30pm	2:30pm	Breakout Sessions of ICASI 2016, Oral 1, Oral 2 (International Conference Room, Building A2 and A3)
2:30pm	3:30pm	Breakout Sessions of ICASI 2016, Oral 3, Oral 4 (International Conference Room, Building A2 and A3)
3:30pm	4:30pm	Breakout Sessions of ICASI 2016, Oral 5, Oral 6, Oral 7 (International Conference Room, Building A1, A2 and A3)
4:30pm	5:30pm	Breakout Sessions of ICASI 2016, Oral 8, Oral 9, Oral 10 (International Conference Room, Building A1, A2 and A3)
6:00pm	8:00pm	Conference Dinner (Ballroom)
8:00pm	9:30pm	Breakout Sessions of ICASI 2016, Oral 11, Oral 12, (International Conference Room, Building A2 and A3)

Main-Conference Schedule		
Monday, May 30, 2016		
8:00am	9:00am	Conference Registration and Conference Information Collection (International Conference Room, Building A2)
9:00am	10:00am	Breakout Sessions of ICASI 2016, Oral 13, Oral 14, (International Conference Room, Building A2 and A3)
10:00am	11:00am	Breakout Sessions of ICASI 2016, Oral 15, Oral 16, (International Conference Room, Building A2 and A3)
9:00am	4:30pm	Poster session of ICASI 2016, P5, P6, P7, P8
10:40am	11:00am	Coffee Break
11:00am	12:00am	Breakout Sessions of ICASI 2016, Oral 17, Oral 18 (International Conference Room, Building A2 and A3)
12:10pm	1:30pm	Lunch (Ballroom)
1:30pm	2:30pm	Breakout Sessions of ICASI 2016, Oral 19, Oral 20 (International Conference Room, Building A2 and A3)
2:30pm	3:30pm	Breakout Sessions of ICASI 2016, Oral 21, Oral 22 (International Conference Room, Building A2 and A3)
3:30pm	4:30pm	Breakout Sessions of ICASI 2016, Oral 23, Oral 24 (International Conference Room, Building A2 and A3)
4:30pm	5:30pm	Breakout Sessions of ICASI 2016, Oral 25, Oral 26 (International Conference Room, Building A2 and A3)
6:00pm	8:30pm	Conference Dinner (Ballroom)
7:00pm	8:30pm	Breakout Sessions of ICASI 2016, Oral 27, Oral 28 (International Conference Room, Building A2 and A3)

Main-Conference Schedule		
Tuesday, May 31, 2016		
8:00am	9:00am	Conference Registration and Conference Information Collection (International Conference Room, Building A2)
9:00am	10:00am	Breakout Sessions of ICASI 2016, Oral 29, Oral 30, (International Conference Room, Building A2 and A3)
10:00am	11:00am	Breakout Sessions of ICASI 2016, Oral 31, Oral 32, (International Conference Room, Building A2 and A3)
9:00am	11:50am	Poster session of ICASI 2016, P9, P10,
10:40am	11:00am	Coffee Break
11:00am	12:00am	Breakout Sessions of ICASI 2016, Oral 33, Oral 34 (International Conference Room, Building A2 and A3)
12:10pm	1:30pm	Lunch (Ballroom)
1:30pm	2:30pm	Breakout Sessions of ICASI 2016, Oral 35, Oral 36 (International Conference Room, Building A2 and A3)
2:30pm	3:30pm	Breakout Sessions of ICASI 2016, Oral 37, Oral 38 (International Conference Room, Building A2 and A3)

3:30pm	4:30pm	Breakout Sessions of ICASI 2016, Oral 39, Oral 40 (International Conference Room, Building A2 and A3)
4:30pm	5:30pm	Breakout Sessions of ICASI 2016, Oral 41, Oral 42 (International Conference Room, Building A2 and A3)

Main-Conference Schedule		
Wednesday, June 1, 2015		
8:00am	9:00am	Conference Registration and Conference Information Collection (International Conference Room, Building A, A2)
9:00am	12:00am	Sponsor Showcase (Ballroom)

議場主題：

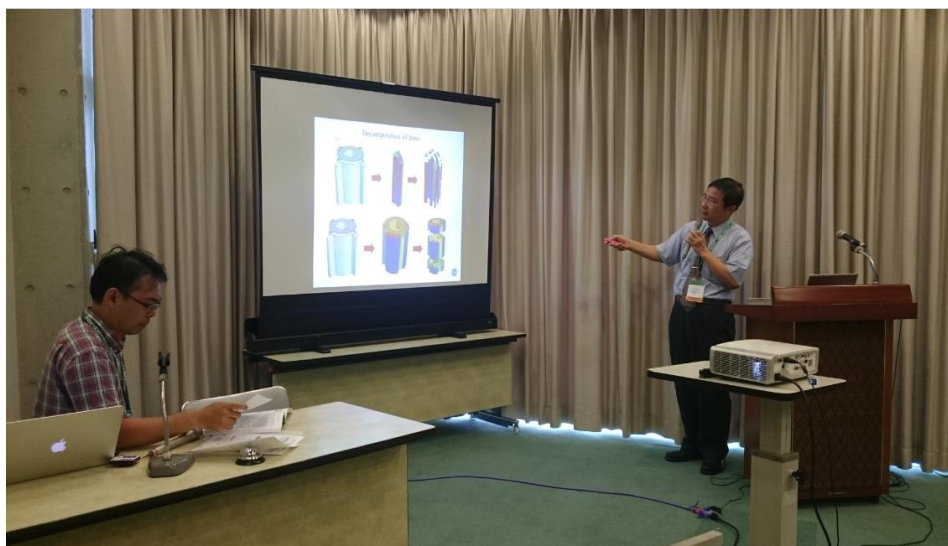
邀請 4 為主要演講者(Keynote Speech)，特別針對數位學習科學、科學學習與問題解決、跨領域學習科學探討，會場熱烈回應及討論。



參與各項研討或報告議題：

特殊電池材料的發展及電池設計在儲能和熱阻在 Xev 和能量儲存系統，在電池的技術變化方面，除了第一天重點呈現的電池材料技術發展方向外，包括製造技術、生產技術與製程前後檢測監控等技術也占有重要角色。

個人擔任 Oral Session Chairman:



在 Invited Session:

討論的主題如下:

(IV1) 智能設計系統中的應用行業

描述

在未來幾年中，“工業 4.0”是機械，電氣等“隱形冠軍”產業的重要樞紐。不管如何，政府，企業，院校傾注了很多的資源，很多的努力，提高工業。情報系統設計與連接，並已成為眾所周知的科學活動在全球產業之一。我們邀請提交相關的行業應用智能設計系統的各個方面的論文。

感興趣的主要議題包括，但不限於：

- 理論與互聯網的-物聯網 (IOT) 的應用
- 智能電子電路與系統設計
- 設計，仿真和情報電子電路中的應用
- 節能與電氣工程方法
- 智能理論，系統和電路設計
- 智能電路與系統設計工具
- 大數據通信和數據挖掘分析
- 與智能系統設計與其他

(IV2) 先進材料與力學性能

描述

特別會議的重點在先進材料表徵及其機械師應用最近的事態發展，這些先進的材料含有薄膜，工程材料，納米材料和其他功能材料。處理這些材料的力學性能（靜態和動態的制度）論文的歡迎。特別會議將是展現在先進材料領域的基礎研究和應用研究的最新成果和他們的實驗力學分析的獨特機會。它還旨在促進不同科學界，包括工程，物理學家和材料科學工程之間的知識

(IV3) 設計科技

描述

有三個目標，本次會議。首先，要與設計行業的國家發展路線，培育先進的專業多元的設計人才。其次，要重視多元文化的學術研究和培育的設計和研究人才和教師的國際視野。最後，為了促進科技與藝術的融合，以達到新的時代產生增值的設計。

(IV4) 智能計算與數據分析

描述

我們正在組織對智能計算與將在日本沖繩舉行的 5 月 28 日至 6 月 1 日，感興趣的主題 2016 年包括但不限於數據分析 ICASI2016 年邀請組：

- 數據挖掘
- 圖像處理
- Cryptography
- Web 數據分析
- 其他新進的數據分析

(IV5) 軟計算及其應用

會話描述

軟計算方法是，旨在利用不精密度，不確定性和局部的真理寬容實現可追蹤性，耐用性和低成本的集合。本次特別會議將匯集研究人員，從業人員，學生來自世界各地，討論軟計算及其對解決現實生活問題的應用領域的最新進展。

由於本次研討會是專門為基於軟計算技術應用系統解決方案，我們鼓勵的軟計算技術或工具到兩個每天和高級應用的集成。採用軟計算技術，如模糊邏輯，神經網絡，進化計算，概率計算，粗糙集，混沌理論，方法混合和其他類似的技術，必須提交的論文發揮重要作用，以解決現實世界的複雜性。

感興趣的主題包括，但不限於：

在圖像處理 - 軟計算

在信號處理 - 軟計算

在醫學圖像分析 - 軟計算

- 軟計算模式識別。

- 軟計算在數據隱藏。

在軟計算領域 - 其他應用程序。

以上主題等。

個人參加論文發表證明：



個人上台報告論文：編號 0338

“Application-Specific Integrated Circuit(ASIC) Chip Design and Fabrication for Addressing DNA Liquid Spray”



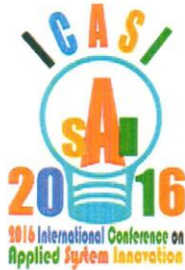
主要內容：

特殊晶片設計熱氣泡液珠的產生方式，在短時間內產生推力極大的氣泡將液體推出，形成微液滴。在生醫微液珠的定量中，選用定址噴液晶片結構腔體，也就是利用噴墨式印表機原理將 DNA 液體佈放到玻璃載玻片上，之後進行每一樣式 DNA 排序。

氣泡式噴墨技術是在噴墨頭的位置在管壁上設置了加熱電極，藉由通過電子脈衝加熱所選定的加熱元件，使噴墨頭產生墨滴。當加熱電極到一定的溫度後，使墨滴成為微小氣泡並爆開，再經過加熱室通過噴墨頭噴出，附著到承印物表面。承印物上的墨滴多寡取決於加熱器件的溫度控制。

以上研究內容發表於 ICASI 2016 研討會，並榮獲 “FIRST PRIZE PAPER AWARD”

獎狀如下：



FIRST PRIZE PAPER AWARD

2016 IEEE International Conference on Applied System Innovation

MAY 28- JUNE 1, 2016, OKINAWA, JAPAN

For the paper:

0338

Application-Specific Integrated Circuit(ASIC) Chip Design and
Fabrication for Addressing DNA Liquid Spray

TIKI President
Prof. Teen-Hang Meen
National Formosa University
Taiwan

IEEE-ICASI General Chairman
Prof. Artde Donald Kin-Tak Lam
Fuzhou University
China

IEEE-ICASI Award Chairman
Prof. Shoou-Jinn Chang
National Cheng Kung University
Taiwan



The Taiwanese Institute of Knowledge Innovation

三、心得及建議事項

結合原理與實驗走在各領域的研究群在該會議裡提出最新最先進結果及驗證，讓與會人士充分了解各個領域，以及可供想要深入研究的研究實驗室最佳參考，很難得的是，在報告者過程中表達淋漓盡致的技術，將研究目的、方法、模擬及實驗展示，以提供與會者在該技術上思考及運用。藉由這次參加此研討會個人也獲益良多，也希望此後能更深入探討相關主題研究，來提升對學術上的貢獻。

附錄

個人擔任 Oral Session Chairman:



Invited Session

Invited Session:

Technical papers on the aspects related to (but not limited to) those in the topics of interest are invited for oral presentation. Length of the full paper is limited within 4 pages (max). The program committee encourages the submission of invited sessions with at least five manuscripts on a well-defined subject of current interest. If you are interested in this, please email us the title of the session, the name and full contact details of the session organizer, and a list of the proposed session contributions, including titles, authors, and the corresponding author of each paper. All papers in invited sessions will be subject to review and assessment by the Program committee.

Apply for Invited Session

Topic

(IV1) Intelligence Design and System in industry Applications

Session description

In the coming years, the “Industry 4.0” is an important hub for mechanical, electrical and other “hidden champion” industries. No matter how, the government, companies, academies have devoted many resource and much effort to raising the industrial. The Intelligence Design and System are attached and had become one of the well-know scientific events worldwide in industry. We invite the submission of papers related to various aspects of Intelligence Design and System applied in industries.

The main topics of interest include, but are not limited to:

- Theories and application of Internet-of-Things (IoT)
- Intelligence Electronic Circuits and Systems Design
- Design, Simulation, and Applications of Intelligence Electronic Circuits
- Saving Energy and Electrical Engineering Methods
- Intelligence Theories, System, and Circuits Design
- Intelligence Circuit and System Design Tools

- Big Data Communication and Data Mining Analysis
- Others related to Intelligence Design and System

Session Chairman

Prof. Jih-Fu Tu

Institution

St. John's University

Status

Open for Submission

Topic

(IV2) Advanced Materials and Mechanical Property

Session description

Special Session focuses on the recent developments on the characterization of advanced materials and their mechanic application, These advanced materials contain thin film, engineering material, nano material, and other functional materials. Papers dealing with the mechanical behavior of these materials (in static and dynamic regimes) are welcome. The Special session will be a unique opportunity to show the latest results in fundamental and applied research in the field of advanced materials and their experimental mechanics analysis. It also aims to promote knowledge between different scientific communities, including Engineering, Physicists and Materials Science Engineers

Session Chairman

Prof. Tao-Hsing Chen

Institution

Department of Mechanical Engineering, National Kaohsiung University of Applied Sciences

Status

Invited Papers Only

Topic

(IV3) Design Science and Technology

Session description

There are three goals for this session. Firstly, To be in line with the design industry of the national development, and cultivate advanced professional multivariate design talent. Secondly, To value multicultural academic researches and nurture design and research talents and teachers with international perspective. Finally, To promote the integration of technology and art in order to reach value added design of New Era Produce.

Session Chairman

Prof. Jui-che Tu

Institution

Graduate School of Design, National Yunlin University of Science and Technology

Status

Open for Submission

Topic

(IV4) Intelligent Computing and Data Analysis

Session description

We are organizing an invited session on Intelligent Computing and Data Analysis for ICASI 2016 which will be held in Okinawa, Japan on May 28-Jun 1, 2016. Topics of interest include, but are not limited to:

- Data Mining
- Image Processing
- Cryptography

- Web Data Analysis
- Other New Approaches to Data Analysis

Session Chairman

Prof. Kawuu W. Lin & Prof. Ju-Chin Chen

Institution

Department of Computer Science and Information Engineering, National Kaohsiung
University of Applied Sciences, Taiwan

Status

Invited Papers Only

Topic

(IV5) Soft Computing and its Applications

Session description

Soft Computing is a collection of methodologies, which aim to exploit tolerance for imprecision, uncertainty and partial truth to achieve tractability, robustness and low-cost. This special session will bring together researchers, practitioners, and students from around the world to discuss the latest advances in the field of soft computing and its applications for solving real life problems.

Since this workshop is dedicated to application system solutions based on soft computing techniques, we encourage the integration of soft computing techniques or tools into both every day and advanced applications. The use of soft computing techniques, such as Fuzzy Logic, Neural Networks, Evolutionary Computing, Probabilistic Computing, Rough Sets, Chaos Theory, Hybrid Methods and other similar techniques, must play a substantial role in submitted papers to address real world complexities. For more details please feel free to contact the session chair – Prof. Hsueh-Yi Lin (hyl@ncut.edu.tw).

The topics of interest include, but are not limited to:

- Soft Computing in Image Processing
- Soft Computing in Signal Processing
- Soft Computing in Medical image analysis
- Soft Computing in Pattern Recognition.
- Soft Computing in Data Hiding.
- Other applications in the field of Soft Computing.

Session Chairman

Prof. Cheng-Jian Lin & Prof. Hsueh-Yi Lin

Institution

Department of Computer Science and Information Engineering, National Chin-Yi
University of Technology

Status

Open for Submission

Topic

(IV6) Intelligent System Engineering and Applications

Session description

In recent years, the intelligent systems have been applied widely in industry from mechanics, vehicles to communications. The intelligent system engineering has become an important topics in many technical conferences. Thus, we are pleased to submit our most recent researches to your upcoming conference. The main topics of interests includes:

- Swarm Intelligence and Applications
- Fireworks Algorithm and Mechanical Applications
- Fuzzy Engineering and Automobiles Applications
- Electronic Buoy Radar Chart Display System
- Multi-Fractal Texture Segmentation for Off-Road Robot Vision Application.

Session Chairman

Prof. Te-Jen Su

Institution

National Kaohsiung University of Applied Sciences

Status

Invited Papers Only

Topic

(IV7) Recent Advances in Decision Making Researches in Technology Management

Session description

During the past decade, various management of technology (MOT) theories and concepts emerged at the moment when novel decision making research methods appeared. Insight studies for the applications of those new research methods in MOT and empirical studies will be very helpful for scholars or managers. Thus, the special session aims to provide an opportunity for scholars to present their most up-to-date researches in the related fields of technology management by introducing novel decision methods including MCDM, MODM, structural equation models (SEMs), etc. Topics of interests include (but are not limited to) decision making of technical product planning, strategy definitions, and consumer behavior analysis of technical products, etc.

Session Chairman

Prof. Chi-Yo Huang

Institution

Program of Technology Management, Department of Industrial Education, National Taiwan Normal University

Status

Invited Papers Only

Topic

(IV8) Energy efficient technology and its application

Session description

This special session is partially supported by Energy research center, college of engineering and Department of mechanical and electro-mechanical engineering, National Sun Yat-sen University. The session, Energy efficient technology and its application, aims at the recent developments on the Energy saving, advanced energy efficient method and applications. An invited session on the above mentioned related technology is organized for ICASI 2016 held in Okinawa, Japan on May 28-Jun 1, 2016.

Session Chairman

Prof. Yu-Jen Wang and Prof. CT Pan

Institution

Energy research center, and Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-sen University

Status

Invited Papers Only

Topic

(IV9) Integration of Biomedical Electronics and Mechatronics

Session description

In recent years, many innovative techniques have been applied widely in the fields of Biomedical Electronics and Mechatronics. The integration of biomedical electronics and mechatronics system engineering has become an important topic in many research issues and technical conferences. The main topics of interests include:

- Development of a Wearable Monitoring Device for Venous Needle Dislodgement in Hemodialysis
- Novel Noninvasive Approach for Detecting Arteriovenous Fistula Stenosis by Bilateral PPG and SVM-OAA Method
- The Stroke Analysis and Control for Table Tennis Robot

- MTPA Control of IPMSM Drive
- Adaptive Network-Based Fuzzy Inference Control of Brushless DC Motor
- FPGA-Based Sensorless Controller for PMSM Drives Using Sliding Mode Observer and Phase Locked Loop
- ModelSim/Simulink Co-Simulation of a Sensorless Control for PMSM Drives Based on I-F startup and EKF.

Session Chairman

Prof. Ming-Shyan Wang

Institution

Southern Taiwan University of Science and Technology

Status

Invited Papers Only

Topic

(IV10) Sensor and IT

Session description

The sensor technology and IT will be very essential in real industrial application for networked operation and automation. IoT or Smart Factory, Remote Sensing, Precision Measurement fields use various kinds of sensors and IoT network. In this session such topics would be discussed with our recent research results with common interest and subject problems. The presenters will get much new knowledge and experience from other presenters.

Session Chairman

Prof. Dr.-Ing. Hiesik Kim

Institution

Electrical and Computer Engineering Department, University of Seoul

Status

Open for Submission

Topic

(IV11) Community Design and Innovative Education

Session description

In recent years, many studies related to Community Design and Innovative Education is continually evolving. Firstly, it has driven many communities and tribes to put stress on local culture and develop their own characteristics as well as local culture industry. Secondly, the state of the economy and culture influence the focus of innovative community design globally and locally.

The main topics of interest include, but are not limited to:

- Community Empowerment
- Community Design
- Design Innovative Education
- The Theory and Practice of Aborigines' Culture
- Activity Design

Session Chairman

Prof. Li-Hsun Peng & Prof. Shyh-Huei Hwang

Institution

National Yunlin University of Science and Technology

Status

Open for Submission

Topic

(IV12) Computer Simulation and Green Technology

Session description

Computer simulation and green technology session is focused on developing and implementing the mathematical model, manufacture process, methodology in green energy, engineering and human behaviors to reproduce and anticipate the further behavior of a system. The research topic covers the high performance building, product fabrication, computer modeling, satellite data, community websites, green technology, etc.

Session Chairman

Prof. Yu-Tuan Chou and Prof. Shao-Yi Hsia

Institution

Chia Nan University of Pharmacy & Science; Kao Yuan University

Status

Invited Papers Only

Topic

(IV13) Information Innovation Applications

Session description

Information Engineering is both an academic and practical engineering field that involves systematic technological materialization through scientific principles and engineering designs. Technological innovation by Information Engineering includes IT-based Intelligent Information Systems, Mechanics and Design Innovations.

Session Chairman

Prof. Kuei-Shu Hsu and Prof. Tian-Syung Lan

Institution

Department of Applied Geoinformatics, Chia Nan University of Pharmacy & Science,
Tainan, Taiwan.

Status

Open for Submission