

出國報告（出國類別：出席研討會暨發表論文）

出席中國大陸遼寧省大連市
ICMCE2013 學術研討會暨發表論文出
國報告

服務機關：國立高雄應用科技大學電子工程系

姓名職稱：黃萬福 講師

派赴國家：中國大陸

出國期間：102 年 08 月 28 日至 100 年 08 月 29 日

報告日期：102 年 09 月 23 日

（更新日期：102 年 12 月 04 日）

摘要

第二屆 2013 機電一體化與控制工程國際學術會議(The 2013 2nd International Conference on Mechatronics and Control Engineering (ICMCE 2013))於本(102, 西曆 2013)年 08 月 28 日至 08 月 29 日在中國大陸遼寧省大連市舉行,會議的主題是機電一體化與控制工程。會議的全部議程在 8 月 29 日一天完成,上午是主題演講(keynote speeches)與受邀演講(invited speeches),下午則為口頭報告(oral presentation)。我在口頭報告議程中發表兩篇論文,分別是「設計一個 4x4 鍵盤任意鍵輸入檢測器(Designing a Four-by-Four Keypad Arbitrary-Key-Entry Detector)」與「整合 4x4 按鍵到簡單型數位時鐘(Incorporating a 4x4 Keypad in a Simple Digital Clock)」。

大會的口頭報告議程共發表了十九篇論文,分別是:

1. Designing a Four-by-Four Keypad Arbitrary-Key-Entry Detector (Wan-Fu Huang)
2. Application on Two Degree of Freedom Model Driven PID in Linear First-order Inverted Pendulum (Jinging Shi, Lixiang Zhang, Aiqin Jiang)
3. Component-based FPGA Circuit Design and Verification for Robotic Systems using JavaRock and ORB Engine – A Case Study (Takeshi Ohkawa, Daichi Uetake, Takashi Yokota, Kanemitsu Ootsu)
4. A Gaussian Process Based Model Predictive Controller for Nonlinear Systems with Uncertain Input-Output Delay (Gang Shen, Yu Cao)
5. Failure Analysis of Planetary Gear Shaft of Power Split Device Based on Multi-Body Dynamics (Yan Liu, Jingfang Ji, Long Kong, Yan Li, Jixin Wang)
6. Application of Ellipsograph-mechanism in Pipe Auto-handling Device and Its Energy Consumption Computation (Xinpeng Hu, Yanlong Kui, Yan Liu, Youhong Sun, Jixin Wang, Ke Gao)
7. Tribological Properties of Carbon/PEEK Composites for Artificial Hip Joint (Sung-Won Yoon, Yun-Hae Kim, Jin-Woo Lee, Han-Bin Kim, Ri-ichi Murakami)
8. A Novel Vehicle Reversing Speed Control Based on Obstacle Detection (Hong Xu, Zutao Zhang)
9. Design, Modeling and Simulation of a Novel Omni-directional Steering System (Xiaopei Li, Zutao Zhang)
10. An Automatic Observation System of Visibility Based on Video (Jingli Wang)
11. Simulation of Electrode Configuration that Used in a MALDI-TOF-MS System (Yizhen Wang, Yu Yang, Jiansheng Xu, Ming Wang)
12. Reentry Landing Boundary Prediction (Dawei Li, Ruikai Jiang, Bo Liu)
13. A Design Method for Time Sequential Synchronization of Semi-physical Simulation on Guidance Weapon System (Ruikai Jiang, Dawei Li, Liuzheng Cui)
14. Insulator Recognition Based on Moments Invariant Features and Cascade AdaBoost Classifier (Siyuan He, Ling Wang, Yong Xia, Yangdong Tang)

15. Incorporating a 4x4 Keypad in a Simple Digital Clock (Wan-Fu Huang)
16. Hybrid Slip Detection Scheme Based Reflex Control of a Prosthetic Hand (Xuefeng Li, Xiaogang Duan, Hua Deng)
17. Study on New Methods of Technology Transfer and Development (Yen-Chieh Mao, Dai-Jia Juan, Sheng-An Wen, Wen-Chi Tsai, Jheng-Ting He)
18. Application of CFD Simulation in Studying Outdoor Wind Environment in Different Community Building Layouts and Open Space Design (Wu Kang-Li, Hung I-An, Lin Hsien_Te)
19. Simulation Analysis of Battery Thermal Management System Using Phase Change Material (PCM) (Maode Li, Peng Liang)

目次

壹、目的	p. 5
貳、出國行程與議程	p. 6
參、心得及建議	p. 7
肆、附錄	p. 7

壹、目的

- 一、 出席第二屆 2013 機電一體化與控制工程國際學術會議(The 2013 2nd International Conference on Mechatronics and Control Engineering (ICMCE 2013))，並口頭發表兩篇論文「設計一個 4x4 鍵盤任意鍵輸入檢測器(Designing a Four-by-Four Keypad Arbitrary-Key-Entry Detector)」與「整合 4x4 鍵盤到簡單型數位時鐘(Incorporating a 4x4 Keypad in a Simple Digital Clock)」。
- 二、 了解機電一體化與控制工程發展近況，與與會學者交換 FPGA 應用設計心得，並與日本學者淺談 FPGA 應用設計合作的可能模式。

貳、出國行程與議程

8 月 27 日(會議前一天)：

單獨赴會的我近中午時分搭高鐵從高雄出發，於下午 16:35 p.m. 搭乘立榮航空 B7106 班機自桃園機場起飛，當日傍晚 19:20 p.m.抵達大連周水子國際機場，搭出租車到大連市西崗區，約 20:40 p.m.住進大連仲夏花園酒店（地址：大連市西崗區八一路 222 號）。

8 月 28 日(會議註冊日)：

在大連仲夏花園酒店大廳辦理學術會議報到，並在酒店內全力準備口頭報告 PowerPoint 檔。在酒店餐廳用餐時，有來自南京市天津大學的教授、來自山東省的研究員、來自遼寧本省瀋陽市的電力單位何思遠專員、與來自西安的研究生同桌，他們各自暢談大陸高鐵建設的神速與所帶來的方便性。

8 月 29 日(主要議程日)上午

上午 8:40 a.m. 到 8:50 a.m. 由大會主席 Professor Yun-Hae Kim 作 opening speech，為大會揭開序幕。8:50 a.m.到 9:30 a.m.由波蘭 University of Zielona Gora 的 Professor Krzysztof Galkowski 作第一場 keynote speech，演講主題核心為「Iterative Learning Control」。9:50 a.m.到 10:30 a.m.由韓國 Korea Maritime University 的 Professor Yun-Hae Kim 金允海教授講演第二場 keynote speech，Professor Yun-Hae Kim 同時也是今天大會的主席。10:30 a.m.到 12:00 a.m.為 invited speeches。

8 月 29 日(主要議程日)下午

下午 14:00 p.m. 到 17:30 p.m.為口頭發表論文時間，第三順位日本京都宮大學大川猛助理教授發表的「Component-based FPGA Circuit Design and Verification for Robotic Systems using JavaRock and ORG Engine-A Case Study」令我印象深刻。我被排在第一順位及第十五順位發表我的兩篇論文，第一順位發表「設計一個 4x4 鍵盤任意鍵輸入檢測器(Designing a Four-by-Four Keypad Arbitrary-Key-Entry Detector)」，第十五順位發表「整合 4x4 鍵盤到簡單型數位時鐘(Incorporating a 4x4 Keypad in a Simple Digital Clock)」。整個下午安排了十九篇論文口頭報告。

下午 17:30 p.m.左右所有論文發表結束時，大會主席 Professor Yun-Hae Kim 邀與會者拍照留念，何思遠專員、大川猛助理教授、Professor Yun-Hae Kim 與我四人也共拍一張照片。稍後晚餐桌上我與日本京都宮大學大川猛助理教授就我們各自發表的 FPGA 相關設計論文作一番仔細討論，花了將近一個小時；兩相對照，我第二篇論文用的 EVS6 PFGA 電路板是新竹工研院開發的電路板，他的電路平台也用日本國內自行開發的電路板，為此，我們對彼此都用到各自國內開發產品表示驚訝，對台灣與日本 FPGA 應用開發技術成熟表示敬佩。

8 月 30 日(回程日)

上午搭公車到大連火車站周遭參觀一番，中午也搭公車到距離酒店不遠的海水浴場體會親近黃海水域的感受。

下午自大連仲夏花園酒店退房，搭出租車到大連周水子國際機場，等候搭乘 20:20 p.m.立榮航空 B7105 班機回台灣，回到桃園是晚上十一點。當晚在台北親友家過一夜，隔天(8 月 31 日)搭高鐵回高雄，結束大連之旅。

參、心得及建議

藉由參加此次 ICMCE2013 國際研討會的交流活動，聽取國際機電一體化與控制工程領域學者專家主講或報導研究主題，也聽取 FPGA 應用電路設計研究方向，作為日後個人 FPGA 應用與研究方向的參考，增進國家及個人在國際的能見度。研討會 Proceedings 電子檔出版於網頁，三個月後已掛上 Ei Compendex，可在 Compendex (Ei Engineering village 2)電子資料庫以論文標題檢索取得兩篇論文的全文，這些都是此次出席會議重要收穫。

Conference Proceedings 出版於 Periodical of Applied Mechanics and Materials, Vols. 433-435, <http://www.scientific.net/AMM>, 集中成冊於 Advances in Mechatronics and Control Engineering II, ISBN-13: 978-3-03785-894-3, Editors: Krzysztof Galkowski and Yun-Hae Kim, 2013, 網址為 <http://www.ttp.net/978-3-03785-894-3.html>。(在進入該網址後，點選 Table of Contents，並翻到第 18 頁與第 28 頁，就會看到兩篇論文標題，網址分別是 <http://www.ttp.net/978-3-03785-894-3/18.html> 與 <http://www.ttp.net/978-3-03785-894-3/28.html>)。兩篇論文分別排版於 Proceedings 的 pp887-894 與 pp1438-1447。

兩篇論文的完整標示如下：

"Designing a Four-by-Four Keypad Arbitrary-Key-Entry Detector," Applied Mechanics and Materials Vols. 433-435 (2013) pp 887-894 © (2013) Trans Tech Publications, Switzerland. doi:10.4028/www.scientific.net/AMM.433-435.887。

"Incorporating a 4x4 Keypad in a Simple Digital Clock," Applied Mechanics and Materials Vols. 433-435 (2013) pp 1438-1447 © (2013) Trans Tech Publications, Switzerland. doi:10.4028/www.scientific.net/AMM.433-435.1438

肆、附錄

一、照片。

底下照片人物，左起為何思遠專員、大川猛助理教授、大會主席金允海教授與我。



二、ICMCE 2013 研討會議程影本。

ICMCE 2013 研討會議程共 12 頁，底下為各頁掃描影本。



CONFERENCE MAP GUIDE



Conference Place: **Dalian Zhongxia Garden Hotel**



2nd ICMCE SECRETARIAT

Any question, please contact the secretariat: +86- 13622212675

**2013 2nd International Conference on
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Prof. Walid Mahmoud Shewakh, Beni Suef university, Egypt

Prof. Yusuf Altintas, University of British Columbia, Canada

Local Organizing Chairman

Dr. Mark Fong, Hong Kong Industrial Technology Research Centre

Conference Website

<http://www.icmce.net>

SCHEDULE OF THE CONFERENCE

August 28

11:00—21:00

Registration, Sequence Hall, Dalian Zhongxia Garden Hotel

12:00—13:00

Lunch, Dalian Zhongxia Garden Hotel

18:00—19:30

Dinner, Dalian Zhongxia Garden Hotel

August 29

8:40—9:30

Open Ceremony and Keynote Speech

9:30—9:50

Tea Break

9:50—10:30

Keynote Speech

10:30—12:00

Invited Speeches

12:00—

Lunch, Dalian Zhongxia Garden Hotel

August 29

14:00—15:30
Plenary Session (Invited Speeches)

15:30—15:50
Tea Break

15:50—17:30
Plenary Session (Invited Speeches)

18:00—
Dinner, Dalian Zhongxia Garden Hotel

Morning, August 29, 2013

Plenary Session (8:40 AM—12:00 AM)

Meeting Room 402, 4/F, Building 1# (1号楼4楼402)

Chairmen

Prof. Krzysztof Galkowski, University of Zielona Gora, Poland

Prof. Yun-Hae Kim, Korea Maritime University, Korea

8:40—8:50 Opening Speech

Iterative Learning Control

8:50—9:30 Keynote Speech

Prof. Krzysztof Galkowski, University of Zielona Gora, Poland

9:30—9:50 Tea Break

9:50—10:30 Keynote Speech

Prof. Yun-Hae Kim, Korea Maritime University, Korea

10:30—12:00 Invited Speeches

(10 minutes for each invited presentation, including 3 minutes for answering questions)

1. Adaptive Fuzzy PID Force Control for a Prosthetic Hand (MC6725)
Gaoke Zhu, Xiaogang Duan, Hua Deng
2. The Fault Diagnosis for Warship's Power Plant Based on Association Rules (MC6718)
Zhiqi Jia, Yuling Gou, Xinjie Han, Lan Chen
3. Intelligent Control and Application of Heat Exchange Station Based on Heating Quality (MC6620)
Wenbiao Wang, Yong Sun, Siyuan Wang, Song Meng

4. Design and Implementation of Blank-Filling Test Module in the Theory Examination System for Tower Cranes (MC6688)
Mingxiao Dong, Junru Tian, Ruichuan Li, Mengmeng Lu, Renyu Luo, Mingshi Jiang
5. Application of Collision Detection in Visual Simulation System for Bridge Cranes (MC6691)
Mingxiao Dong, Mengmeng Lu, Ruichuan Li, Junru Tian, Renyu Luo and Mingshi Jiang
6. Application of Vega Path Tool in Visual Simulation System for Bridge Cranes (MC6692)
Mingxiao Dong, Mengmeng Lu, Ruichuan Li, Junru Tian, Renyu Luo and Mingshi Jiang
7. A Study on Particle Trajectory of Particle Swarm Optimization (MC6387)
ZhenZhou An, Hui Zhou, Yang Yang, XinLing Shi

Afternoon, August 29, 2013

14:00 PM—17:30 PM

Plenary Session

Meeting Room 402, 4/F, Building 1# (1号楼4楼402)

Chairmen: Prof. Yun-Hae Kim, Korea Maritime University, Korea

Prof. Takeshi Ohkawa, Utsunomiya University, Japan

(10 minutes for each presentation, including 2 minutes of answering questions)

1. ~~Designing a Four-by-Four Keypad Key-Entry Detector for an Arbitrary Set of Key Entries with Interfacing Signal Furnished (MC6698)~~ *Wan-Fu Huang* ✚ 也是
1. Designing a Four-by-Four Keypad Arbitrary-Key-Entry Detector (MC6698)
2. Application on two degree of freedom model driven PID in liner first-order inverted pendulum (MC6508)
Jingjing Shi, Lixiang Zhang, Aiqin Jiang
3. Component-based FPGA Circuit Design and Verification for Robotic Systems using JavaRock and ORB Engine - A Case Study (MC6750)
Takeshi Ohkawa, Daichi Uetake, Takashi Yokota, Kanemitsu Ootsu
4. A Gaussian Process Based Model Predictive Controller for Nonlinear Systems with Uncertain Input-output Delay (MC6593)
Gang Shen, Yu Cao
5. Failure Analysis of Planetary Gear Shaft of Power Split Device Based on Multi-Body Dynamics (MC6756)
Yan Liu, Jingfang Ji, Long Kong, Yan Li, Jixin Wang
6. Application of Ellipsograph-mechanism in Pipe Auto-handling Device and Its Energy Consumption Computation (MC6428)
Xinpeng Hu, Yanlong Kui, Yan Liu, Youhong Sun, Jixin Wang, Ke Gao
7. Tribological Properties of Carbon/PEEK Composites for Artificial Hip Joint.
Sung-Won Yoon, Yun-Hae Kim, Jin-Woo Lee, Han-Bin Kim and Ri-ichi Murakami
8. A Novel Vehicle Reversing Speed Control Based on Obstacle Detection (MC6898)
Hong Xu, Zutao Zhang
9. Design, Modeling and Simulation of a Novel Omni-directional Steering System (MC6903)
Xiaopei Li, Zutao Zhang
10. An Automatic Observation System of Visibility Based on Video (MC7046)
Jingli Wang

11. Simulation of Electrode Configuration that Used in a MALDI-TOF-MS System (MC7088)
Yizhen Wang, Yu Yang, Jiansheng Xu, Ming Wang
12. Reentry Landing Boundary Prediction (MC7081)
Dawei Li, Ruikai Jiang, Bo Liu
13. A Design Method for Time sequential Synchronization of Semi-physical Simulation on Guidance Weapon System (MC7001)
Ruikai Jiang, Dawei Li, Liuzheng Cui
14. Insulator Recognition Based on Moments Invariant Features and Cascade AdaBoost Classifier (MC6938)
Siyuan He, Ling Wang, Yong Xia, Yangdong Tang
15. Incorporating a 4x4 Keypad in a Simple Digital Clock (MC7164)
Wan-Fu Huang
16. Hybrid Slip Detection Scheme based Reflex Control of a Prosthetic Hand (MC6711)
Xuefeng Li, Xiaogang Duan, Hua Deng
17. Study on New Methods of Technology Transfer and Development (MC7100)
Yen-Chieh Mao, Dai-Jia Juan, Sheng-An Wen, Wen-Chi Tsai, Jheng-Ting He
18. Application of CFD Simulation in Studying Outdoor Wind Environment in Different Community Building Layouts and Open Space Design (MC7196)
Wu Kang-Li, Hung I-An, Lin Hsien_Te
19. Simulation Analysis of Battery thermal Management System using Phase Change Material(PCM) (MC7028)
Maode Li, Peng Liang

