出國報告（出國類別：考察）

出席臺英頂尖大學合作研究研發會議報告

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摘要

本次臺英研究合作會議由台南大學主辦，並由中正、屏東科技大學、高雄大學、成功大學、雲林科技大學、哈瑪星科技股份有限公司等學校及產業單位共同協辦。主要參訪學校為英國的 University of Essex 及 Imperial College。共四天的行程中，前面兩天在 University of Essex 討論研究方向，第三天參訪國科會駐英科技組研商學術合作事宜，第四天至 Imperial College 參訪 Department of Computing, 雲端計算實驗室，並討論研究合作事宜。這幾天的行程相當緊湊並且對台灣及英國研究人員雙方的研究都有正面的激勵與幫助。會議的一個重要結論是希望此會議有延續性，不要只是一年辦完就斷了，應該每年都舉辦。所以，明年會繼續在台灣屏東科技大學舉辦此會議，屆時應該會有更多的收穫。

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目的

本次會議有兩個大的目的。第一，希望透過這次的雙邊研討會協助台灣和英國的幾所大學在計算機研究方面進行合作。第二，在教育制度方面希望透過簽訂兩國之間校際 3+1 學制，讓學生有機會在取得台灣大學的學士文憑的同時，也可以取得英國大學的碩士學位。兩天的會議，除了研究報告之外，就是簽訂此校際 3+1 學制。其中，3 是指在台灣讀完三年的大學，1 是指在英國讀一年的碩士班。這樣他一個學生四年畢業時，就可以擁有學士和碩士兩個學歷。

過程

臺英頂尖大學研究合作會議由台灣六所學校及英國的兩所學校共同舉辦。共四天的會議，其中前兩天在 University of Essex 舉行研究合作會議，第三天參訪國科會駐英科技組，第四天參訪 Imperial College 的 Department of Computing, 雲端計算實驗室。本人於第二天報告中正大學資工系的一些研究成果以及在特教及小學建置的 RFID 安全校園成果。與會人員對本校的成果都很有興趣並表示合作意願，因此此次行程有很大的收穫。另外，英國 University of Essex 的研究團隊主要 focus 在 Smart Space(智慧空間)的建置與相關議題的討論，並且帶領台灣團隊參觀他們的 Living Labs 以及一些實體展示的成果。

第三天在參訪國科會駐英科技組時，駐英代表發言，除了歡迎台灣大學研究團隊之外，亦讓英方的研究人員對台灣在英國方面的貢獻有更深層的認識與了解。餐敘時，臺英及各大學之間，相互的交流有助於提升各自的研究能量與合作意願。

第四天在倫敦的 Imperial College，主要參訪雲端計算實驗室。令人驚豔的是，該實驗室的研究成果均很傑出以及對英國產業界的幫助也很大。所以，不僅是研究做得好，對國家的產業價值與競爭力有相當大的助益。該實驗室的人力來自各國，尤其有很多的博士後學者在該實驗室進行不錯的研究。這些都是台灣的大學應該多學習的地方。

心得及建議

本次參訪英國的 University of Essex 及 Imperial College，令人印象最深刻的就是他們在研究的積極度都很高，在研究的廣度和深度均很足夠。看到他們的 Living Labs 和 Cloud Computing 的成果，覺得我們有很多地方可以學習的。例如，經費的來源可以從產學合作而來，或者可以接大型建置合作計畫。

明年將在台灣屏東科技大學舉辦次會議的第二屆，所以建議台灣政府相關單位，例如教育部、國科會應該大力支持這樣有意義的活動。因為唯有這樣才能提升我國在國際平台的競爭力、實力與能見度。

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April 23th, 2012

Time	Topic& Session	
09:30 | 09:40	**Workshop Opening** Professor David Sanders, Pro-Vice-Chancellor (Research & Enterprise), University of Essex, United-Kingdom Professor Chaur-Tzuhn Chen, Vice President, National Pingtung University of Science and Technology, Taiwan	
09:40 | 09:50	**Welcome Speech** Dr Maria Fasli, Head of the School of Computer Science and Electronic Engineering Professor Pau-Choo Chung, Director of the Computer Science, National Science Council, Taiwan	
09:50 | 10:20	Coffee Break	
10:20 | 11:20	10:20~10:50 (UK): **Chair-Professor Victor Callaghan**	10:50~11:20 (Taiwan): **Chair-Professor Chang-Shing Lee**
	Mixed-Reality Learning Using the Inter-Reality Portal Dr. Michael Gardner, University of Essex, UK	Research Issues at EE of NCKU Professor Pau-Choo Chung, NCKU, TW
11:20 | 12:20	11:20~11:50 (UK): **Chair-Professor Victor Callaghan**	11:50~12:20 (Taiwan): **Chair-Professor Chuan-Yu Chang**
	Computational Intelligence in the Digital Economy Dr. Christian Wagner, University of Nottingham, UK	High Efficiency Cloud Platform for Vehicular Networks: Design and Implementation Professor Hsu-Yang Kung, NPUST, TW
12:20 | 14:00	Lunch	
14:00 | 15:00	14:00~14:30 (UK): **Chair-Professor Hani Hagras**	14:30~15:00 (Taiwan): **Chair-Professor Hsu-Yang Kung**
	Type-2 Fuzzy Systems Applied to Multivariable Fuzzy Logic and Self-Organizing Fuzzy Logic Controllers for Anesthesia Dr. Faiyaz Doctor, University of Coventry, UK	Advanced Institute of Manufacturing with High-tech Innovations (AIM-HI): An Introduction Professor Chih-Chun Cheng, CCU, TW
15:00 | 15:20	Coffee Break	
15:20 | 16:20	15:20~15:50 (UK): **Chair-Professor Hani Hagras**	15:50~16:20 (Taiwan): **Chair-Professor Che-Hung Liu**
	Challenges and Opportunities within Intelligent Environments Dr. Juan Carlos Augusto, University of Ulster, UK	Type-2 Fuzzy Ontology Model and its Applications (I) Professor Chang-Shing Lee, NUTN, TW
16:20 | 17:00	**Chair-Professor Martin Henson & Professor Pau-Choo Chung**	
	Opportunities for Research Cooperation between UK and Taiwan Dr Edward Clarke, Engineering and Physical Sciences Research Council(EPSRC, UK) Dr. Yu-Han Tsou, Science and Technology Division, Taipei Representative Office (NSC, Taiwan) UK-TW team members	
17:00 | 17:15	**Chair-Tim Gutsell, Director of International Office, University of Essex & Miss Li Ge**	
	The University of Essex Southern Taiwan Consortium Scholarship for Master programs at University of Essex	
17:30	Banquet	

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April 24th, 2012

Time	Topic& Session	
09:30 | 10:30	09:30~10:00 (UK): **Chair-Dr Michael Gardner**	10:00~10:30 (Taiwan): **Chair-Professor Pao-Ann Hsiung**
	Advanced Technology Research at the ThinkLab Professor Terrence Fernando, University of Salford, UK	Computational Intelligence for Emotional Recognition Professor Chuan-Yu Chang, YunTech, TW
10:30 | 11:30	10:30~11:00 (UK): **Chair-Dr Michael Gardner**	11:00~11:30 (Taiwan): **Chair-Mr. Chuan-Lang Lin**
	Adjustable Autonomy Agents Professor Victor Callaghan, University of Essex, UK	Integrating Temporal and Non-Temporal Features for Music Genre Classification Professor Jiann-Shu Lee, NUTN, TW
11:30 | 12:00	Coffee Break	
12:00 | 12:30	**Welcome Speech by Professor Colin Riordan, Vice Chancellor, University of Essex, UK**	
12:30 | 13:30	Lunch	
13:30 | 14:30	13:30~14:00 (UK): **Chair-Professor Victor Callaghan**	14:00~14:30 (Taiwan): **Chair-Professor Chih-Chun Cheng**
	Towards Simple and Effective Formal Methods for Intelligent Environments Professor Martin Henson, University of Essex, UK	Evaluating Learning Effects of Procedure-Oriented Machine Simulation Mr. Chuan-Lang Lin, HAMASTAR Technology Co. Ltd., TW
14:30 | 15:30	14:30~15:00 (UK): **Chair-Professor Victor Callaghan**	15:00~15:30 (Taiwan): **Chair-Professor Jiann-Shu Lee**
	Computational Intelligence Research in Essex Professor Hani Hagras, University of Essex, UK	RFID Campus for Special Education and Elementary Schools Professor Pao-Ann Hsiung, CCU, TW
15:30 | 16:00	15:30~16:00 (Taiwan): **Chair-Professor Che-Hung Liu**	
	Type-2 Fuzzy Ontology Model and its Applications (II) Mr. Hsien-De Huang, NCKU, TW	
16:00 | 16:30	Coffee Break Networks Centre Foyer, School of Computer Science and Electronic Engineering	
16:30 | 18:30	Tour in the Labs of the School of the Computer Science and Electronic Engineering, University of Essex, UK Including The Immersa Station, David Aldridge, Immersive Displays Co Ltd, UK	
18:30	Workshop Finishes	

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Professor Pau-Choo Chung
National Cheng Kung University (NCKU)

Pau-Choo (Julia) Chung received the Ph.D. degree in electrical engineering from Texas Tech University, USA, in 1991. She then joined the Department of Electrical Engineering, National Cheng Kung University (NCKU), Taiwan, and has become a full professor since 1996. She served as the Vice Director (2001-2005), then the Director (2005-2008) of the Center for Research of E-life Digital Technology, the Director of Electrical Laboratory (2005-2008), and the Director of Institute of Computer and Communication Engineering (2008-2011), NCKU. She was selected as Distinguished Professor of NCKU, 2005. She currently is serving as the Chair of Department of Electrical Engineering, NCKU.

Dr. Chung's research interests include medical image analysis, video analysis, pattern recognition, computational intelligence, biosignal analysis, neural networks, and computer vision. Particularly she applies most of her research results on healthcare and medical applications. She received many awards, such as the annual best paper award in Chinese Journal Radiology 2001, the best paper awards from World Multi-conference on Systemics, Cybernetics, and Informatics (SCI) 2001 and International Computer Symposium (ICS) 1998, Acer's Best Research Award in 1994 and 1995, the best paper awards from the Conference of Computer Vision, Graphics, and Image Processing (CVGIP), in 1993, 1996, 1997, 1999, and 2001, as well as Best Research Young Innovator Award of National Science Council, Taiwan, in 1999. Dr. Chung has served as the Program Co-Chair, the Publicity Co-Chair, the Special Session Co-Chair, and program committee member in many international conferences. Dr. Chung was the Chair of IEEE Computational Intelligence Society (CIS) (2004-2005), Tainan Chapter. She is the Chair of the IEEE Life Science Systems and Applications Technical Committee, and a member of the BioCAS Technical Committee in the CAS Society. She served as the Editor of Journal of Information Science and Engineering, the Guest Editor of IEEE Transactions on Circuits and Systems-I, and the Secretary General of Biomedical Engineering Society of the Republic of China. Currently she is the Associate Editors of IEEE Transactions on Neural Networks and Learning Systems, the Multidimensional Systems and Signal Processing, and Soft Computing. She is one of the co-founders of Medical Image Standard Association (MISA) at Taiwan and currently is in the Board of Directors of MISA, and BoG of Image Processing and Pattern Recognition (IPPR) Association, Taiwan.

Pau-Choo Chung currently is serving the second term in BoG of CAS Society (2007-2009, 2009-2012) and the ADCOM member of IEEE CIS. She also served as one IEEE Distinguished Lecturer (2005-2007) in CASS. She is in Member of Phi Tau Phi honor society and has been an IEEE Fellow since 2008.

Research Issues at EE of NCKU

The Department of Electrical Engineering consists of one undergraduate program and three Institutes. The researches in the Electrical Engineering Department of National Cheng Kung University (NCKU) range from VLSI and chip design, Control, Material, Microelectronics, Renewable Energies, Computer and Communication. Among such broad band of researches, there are several areas which are highly related to the computational intelligence (CI). These includes the application of CI on energy grid, on power analysis, on intelligent robotic. National Cheng Kung University has an associated hospital which serves as the main medical center in southern Taiwan. This initiates a significant amount of cooperation between the Hospital and the engineering sides. Thus, NCKU-EE has certain amount of faculties working on healthcare and medical related researches. In this presentation, I will briefly introduce these researches for bringing the attendees a guideline for seeking the collaboration partners.

Professor Hsu-Yang Kung

National Pingtung University of Science and Technology (NPUST)

Dr. **Hsu-Yang Kung** received his BS degree from Tatung University, MS degree from National Tsing-Hwa University, PhD degree from National Cheng-Kung University, Taiwan, all in computer science and information engineering. He is currently a professor of Department of Management Information Systems and Dean of College of Management, National Pingtung University of Science and Technology, Taiwan. Prof. Kung published more than 200 academic papers and obtained the best paper and thesis wards 6 times. Prof. Kung dominated more than 50 industrial and academic research projects and owned 8 patens. Prof. Kung received the Excellent Research Group Awards 4 times from National Science Council and the Excellent Research Award from NPUST at 2010. Prof. Kung with his students also won more than 40 international and domestic prizes about network communication software. His research interests include multimedia network systems, wireless and mobile communications, and embedded multimedia applications.

High Efficiency Cloud Platform for Vehicular Networks: Design and Implementation

With the progress of telematics technologies, the vehicular systems have been growing rapidly and linking closely to our everyday lives. To cater to future applications associated with cloud services, nowadays the vehicular systems go towards the integration of vehicular communications and services, such as multimedia amusements, vehicular safety, and driver-vehicle sensing services. The presentation is about the integrated project, which is named as "High Efficiency Cloud Platform for Vehicular Networks: Design and Implement", The propose of this project is to build the Cloud Service Platform (CSP) and Virtual Server Cluster (VSC) and to provide the high efficiency computing and storage capacities for users and vehicle information service providers. However, some key techniques of software and hardware need to be resolved in the current methods, so main project and each subproject are responsible for the development of vehicular communications and services, respectively. (1) High Efficiency Cloud Platform for Vehicular Networks: The main project develops the Cloud Service Load Balance Mechanism (CSLB) to integrate the web services from each subproject and allocate the servers in cloud computing data center to serve users. The main project also considers the dynamic traffic information to design the CSLB, Distribution Storage Management Mechanism (DSM), and Cloud Live Migration Mechanism (CLM) to provide high efficiency services for users. (2) The seamless handoff control mechanism: The subproject 1 establishes vehicular sensor web services to collect the sensing data from all kinds of sensors equipped in cars and transmit these data to the servers in the cloud computing data center for driver's requests. In order to provide stable and smooth transmission quality of network services, the subproject 1 designs the streaming priority management mechanism for differential service requirements. (3) Voice System in Cloud for Long-distance Driving with Refreshing Effect: The subproject 2 designs a voice system for long-distance driving with the refreshing effect. To provide an alarm when the driver is under the state of doze, the system will detect the driver's vital information and decide the fatigue degree. The subproject 2 also develops the AI techniques for the intelligent vehicle voice system which depends on the user's listening history and the taste of the group user. Moreover, a virtual Kara-Ok system will be developed with the query by humming technique. (4) Driver-Vehicle Sensing Gateway for Safe Driving: the subproject 3 designs and develops the a low-cost embedded system as the prototype gateway to transmit the data between Controller Area Network (CAN) and ZigBee networks for collecting personal health information and vehicle states. The gateway also provides the OBD (On Board Diagnostics) II information analysis module, vehicle state detection module, and personal health information analysis module to improve the convenience and safety of driver. (5) Mobile P2P Streaming Transport Service for supporting Cloud Computing in a Vehicular Network: The subproject 4 designs a video streaming transport service for facilitating the cloud video service in a vehicular network. The subproject 4 proposes the two-tier transport architecture: (1) The Cloud-to-Vehicle (C2V) tier focuses on the streaming issues between the cloud servers and vehicles to perform Unequal Error Protection/ Forward Error Correction (UEP/FEC) coding on video data. (2) The Vehicle-to-Vehicle (V2V) tier focuses on the video sharing among other vehicles to achieve the data sharing and alleviate the traffic load from cloud servers.

Professor Chih-Chun Cheng
National Chung Cheng University (CCU)

Chih-Chun (Douglas) Cheng is currently professor and chairman of Department of Mechanical Engineering at National Chung Cheng University (CCU). He received his 1985 B.S. from National Cheng Kung University, 1990 MS and 1994 Ph.D. from North Carolina State University (USA). He worked as Adjutant Professor in Dept. of Mechanical and Nuclear Engineering at Pennsylvania State University (USA) in 2005. Now he also serves as Deputy Director of Advanced Institute of Manufacturing with High-tech Innovations (AIM-HI) and an editor of Journal of the Chinese Society of Mechanical Engineers. His industry background has included the work in General Electric Co. (USA) and Ford Motor Co. (USA). He also serves as technical consultant of several machine tool companies in Taiwan.

Dr. Cheng's technical interests lie in the areas of Structural acoustics, vibration and smart sensing. He has authored in excess of 60 professional articles including archival journal papers and professional conference articles in these areas. Dr. Cheng is the recipient of many awards including the Outstanding Research Award of CCU.

Advanced Institute of Manufacturing with High-tech Innovations (AIM-HI): An Introduction

The talk is divided into two parts. The first one is an introduction of a newly established institute called Advanced Institute of Manufacturing with High-tech Innovations, or abbreviated to AIM-HI, in National Chung Cheng University. One of the objectives of this institute is to collaborate internationally with academic community both on research and education. The 2012 AIM-HI Summer Internship program that helps the undergraduate/graduate students who look for a summer internship oversea will also be introduced. This paid internship is designed to offer students with an opportunity to gain hands-on practical experience and to explore the career at an academic research institute. The second part of the talk is to introduce the research related to the intelligent technology applied in the manufacturing. A research project in AIM-HI, named development of smart feed drive system funded by both government and private company will be presented as an example.

Professor Chang-Shing Lee
National University of Tainan (NUTN)

Chang-Shing Lee(SM'09) received the Ph.D. degree in computer science and information engineering from the National Cheng Kung University, Tainan, Taiwan, in 1998.He is currently a Professor with the Department of Computer Science and Information Engineering, National University of Tainan, where he is the Dean of Research and Development Office. He is also an Associate Editor of the IEEE Transactions on Computational Intelligence and AI in Games (IEEE TCIAIG), Applied Intelligence, and Journal of Ambient Intelligence and Humanized Computing (AIHC). His current research interests include ontology applications, type-2 fuzzy sets and applications, knowledge management, healthcare, capability maturity model integration, scheduling, and artificial intelligence, and he is also interested in intelligent agents, web services, machine learning, and image processing. He also holds several patents on ontology engineering, document classification, image filtering, and healthcare.

Prof. Lee was awarded outstanding achievement in Information and Computer Education & Taiwan Academic Network (TANet) by Ministry of Education of Taiwan in 2009, and excellent researcher by National Science Council of Taiwan in 2010 and 2011. Additionally, he also served the program-chair of the 2011 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2011) and was the Emergent Technologies Technical Committee (ETTC) Chair of the IEEE Computational Intelligence Society (CIS) from 2009 to 2010. During 2008, he was the ETTC Vice Chair of the IEEE CIS. He is also a member of the Program Committees of more than 50 conferences. He is a member of the Taiwanese Association for Artificial Intelligence and the Software Engineering Association Taiwan.

Type-2 Fuzzy Ontology Model and Its Applications (I)

It is widely pointed out that classical ontology is not sufficient to deal with imprecise and vague knowledge for some real world applications like personal diabetic diet recommendation and the game of Go. On the other hand, fuzzy ontology can effectively help to handle and process uncertain data and knowledge. This research project proposes a novel ontology model based on interval type-2 fuzzy sets (T2FSs) that is called type-2 fuzzy ontology (T2FO) with application for knowledge representation in the field of personal diabetic diet recommendation or game of Go. The T2FO is composed of (1) a type-2 fuzzy personal profile ontology (type-2 FPPO), (2) a type-2 fuzzy domain ontology (type-2 FDO), and (3) a type-2 fuzzy personal domain ontology (type-2 FPDO). In addition, the research project will also present a T2FS-based intelligent agent for different applications.

Professor Chuan-Yu Chang

National Yunlin University of Science and Technology (YunTech)

Chuan-Yu Chang received his B.S. and M.S. degrees in navigation science and electrical engineering from National Taiwan Ocean University, Keelung, Taiwan, in 1993 and 1995, respectively, and his Ph.D. degree in electrical engineering from National Cheng Kung University, Tainan, Taiwan, in 2000. From 2001 to 2002, he was with the Department of Computer Science and Information Engineering, Shu-Te University, Kaohsiung, Taiwan, R.O.C. From 2002 to 2006, he was with the Department of Electronic Engineering, National Yunlin University of Science and Technology, Yunlin, Taiwan. Since 2007, he has been with the Department of Computer and Communication Engineering (later Department of Computer Science and Information Engineering), National Yunlin University of Science & Technology, where he is currently a full professor and the Dean of Research and Development Office.

His current research interests include neural networks and their application to medical image processing, wafer defect inspection, digital watermarking, and pattern recognition. In the above areas, he has over 150 publications in journals and conference proceedings. Dr. Chang received the excellent paper award of the Image Processing and Pattern Recognition society of Taiwan in 1999, 2001 and 2009. He was also the recipient of the best paper award in International Computer Symposium in 1998 and 2010, and the best paper award in the Conference on Artificial Intelligence and Applications in 2001, 2006, 2007, and 2008 and the best paper award in National Computer Symposium in 2005. Dr. Chang is a senior member of IEEE, and a life member of IPPR (Chinese Image Processing and Pattern Recognition Society) and TAAI (Taiwanese Association for Artificial Intelligence), and is listed in Who's Who in Science and Engineering, Who's Who in the World, Who’s Who in Asia, and Who’s Who of Emerging Leaders. He is a member of the Program Committees of more than 50 conferences.

Computational Intelligence for Emotional Recognition

Cases of physical and mental diseases caused by stress and negative emotions have increased annually. Many emotion recognition methods have been proposed. Facial expression is widely used for emotion recognition. However, since facial expressions may be expressed differently by different people, inaccurate results are unavoidable. Physiological responses are non-autonomic nerves in physiology. Physiological responses and the corresponding signals are difficult to control when a person is overcome with emotion.

Therefore, in this talk I will introduce three types of emotion recognition system including

- Subject-dependent Facial Expression Recognition System, in which the face recognition was combined with facial expression recognition
- Physiological Emotion Recognition, which is an emotion recognition system that considers physiological signals.
- Emotion Recognition by facial expression and physiological signals.

A specific designed emotion induction experiment is performed to collect the facial expression images and physiological signals. Many computational intelligence methods including neural networks, SVM, and SVR are used in emotion classification. Experimental results show that these recognition systems are able to identify respective facial expressions and conceivable physiological emotions.

Professor Jiann-Shu Lee

National University of Tainan (NUTN)

Jiann-Shu Lee received his Ph.D. in electrical engineering from National Cheng Kung University. His experience includes assistant researcher at the Institute for Information Industry (III), and management experience at the information center at Chung Shan Medical University, at the Department of Computer Science and Information Engineering at Da-Yeh University, and served as the academic director of the Biomedical Engineering Society of the R.O.C.. He is specialized in multimedia signal analysis, image processing, medical image processing, and computational intelligence and he is also the author of many academic articles, including publications in journals such as IEEE Transactions on Image Processing, IEEE Transactions on Information Technology in Biomedicine and Pattern Recognition. He has served as Session Chairs and Program Committees in many domestic and international conferences. He has also received numerous awards and certificates from organizations such as Cisco, Acer, IAENG, IIHMSP, and Xerox. Currently, he is a Professor with the Department of Computer Science and Information Engineering, National University of Tainan, where he also serves as the Director of Computer Center.

Integrating Temporal and Non-Temporal Features for Music Genre Classification

This speech will introduce a hierarchical music genre classification method integrating both temporal and non-temporal features of music. First of all, music genres are divided into two primary classes based on the difference of global timbre. Then, the concept of audio words are applied to convert the music into sequence of audio words. A transition probability model is derived for each genre by estimating n-grams from the training data and the maximum likelihood estimation is utilized to classify the music. To improve the accuracy, we propose a feature selection method based on typical-driven refinement. This method enhances the performance by excluding confusing training samples. Experimental results show that the proposed method can improve the accuracy of music genre classification by 4%. Finally, I will briefly introduce some outcome of my recent research such as biplane knee reconstruction, lung nodule detection, respiration estimation, nudity detection and hair segmentation.

Mr. Chuan-Lang Lin

HAMASTAR Technology Co., Ltd

Chuan-Lang (Eric) Lin graduated with a Master degree of Information Management from the National Sun Yat-Sen University, Kaohsiung, Taiwan. He has rich practical experience in information technology industry for more than 24 years, specializes in E-Learning and Knowledge Management Solution. He also worked for well-know institution, Institute for Information Industry (III) for more than 10 years. He is currently a CEO of HAMASTAR Technology Company in Taiwan. At the same time, he is also an E-learning and KM consultant of Small and Medium Enterprise Administration, Ministry of Economic Affairs and the consultant of Ministry Education, National Science Council, Industrial Development Bureau, etc.

HAMASTAR Technology was founded through investment by several international software companies (including Acer and Corel) and Venture-capital companies (including Sun Yat-Sen University). Since being founded, HAMASTAR Technology has been committed to continuous and significant improvements to our technical services and product quality. The main products of our company are SimMAGIC eBook (interactive multimedia eBook authoring tool), SimMAGIC Cloud Library (Cloud services system), Knowledge Management Solution, etc. In the meanwhile, our products and service has already expanded into many countries in the world, such as China, Japan, and Europe.

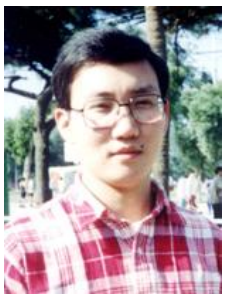
HAMASTAR Technology awarded outstanding achievements as follow:

- Join the European Commission ALICE Project- Adaptive Learning via Intuitive/Interactive, Collaborative and Emotional systems, 2011
- ITA AWARD- Award for Industry Technology Advancement, 2011
- Outstanding I.T. Application/Products Award, 2011
- Microsoft Gold Partner, 2010
- Acquired the Authentication & Verification process of D&B D-U-N-S Registered™ Certificate ,2010
- CMMI (Capability Maturity Model Integration) Level 2, 2005

Evaluating Learning Effects of Procedure-Oriented Machine Simulation

With the increasing requirements of modern enterprises on the profits and business competitiveness, the implementation and exertion of e-learning means a matter of efficiency. However, the application of e-learning program has faced many challenges with the increasing complexity of learning content. For a training program featuring procedure-oriented operation, current e-learning models have not been well-suited with its inability to provide simulative practice and to interact with trainees, and the exception handling experience is hard to accumulate. To solve the training problems, we develop a simulation learning tool and link to the KM database. This paper examines the actual process of how a company implements the new simulation learning program and investigates into its effects. We choose W as our case company and the samples consisted of 1045 employees from two groups. During the ten-month experimental period, experiment group adopted simulation learning program and control group adopted traditional learning program. Through Kirkpatrick's training evaluation model, assess the users' reactions and subsequent performance. With the auxiliary of the simulation learning tool, we find the experimental group been proved to reduce more than 50% of training cost, 63% of learning cost, 62.5% of training time and 46.7% of MO rate.

Professor Pao-Ann Hsiung
National Chung Cheng University (CCU)



Pao-Ann Hsiung, Ph.D., received his B.S. in Mathematics and his Ph.D. in Electrical Engineering from the National Taiwan University, Taipei, Taiwan, ROC, in 1991 and 1996, respectively. From 1996 to 2000, he was a post-doctoral researcher at the Institute of Information Science, Academia Sinica, Taipei, Taiwan, ROC. From February 2001 to July 2002, he was an assistant professor and from August 2002 to July 2007 he was an associate professor in the Department of Computer Science and Information Engineering, National Chung Cheng University, Chiayi, Taiwan, ROC. Since August 2007, he has been a full professor. Dr. Hsiung has published more than 210 papers in international journals and conferences. He was the recipient of the 2010 Outstanding Research Award given by the National Chung Cheng University to three faculty members only. He received the 2001 ACM Taipei Chapter Kuo-Ting Li Young Researcher for his significant contributions to design automation of electronic systems. He was also a recipient of the 2004 Young Scholar Research Award given by National Chung Cheng University to five young faculty members per year. He received several advisor awards for Best Master Theses, embedded system competitions, and RFID design competitions. Dr. Hsiung is a senior member of the IEEE, a senior member of the ACM, and a life member of the IICM. He has been included in several professional listings such as Marquis' Who's Who in the World, Marquis' Who's Who in Asia, Outstanding People of the 20th Century by International Biographical Centre, Cambridge, England, Rifacimento International's Admirable Asian Achievers (2006), Afro/Asian Who's Who, and Asia/Pacific Who's Who. Dr. Hsiung is the editor-in-chief for the software engineering topic of the International Journal of Advancements in Computing Technology, Advanced Institute of Convergence IT, and the editor-in-chief for the automated control systems topic of the International Journal of Intelligent Information Processing, Human and Sciences Publication, since 2011.He is also an editor for the International Journal of Next Generation Information Technology, Human and Sciences Publication, the International Journal of Advances in Information Sciences and Service Sciences, Advanced Institute of Convergence IT, the International Journal of Advancements in Computing Technology, Advanced Institute of Convergence IT, the International Journal of Embedded Systems, Inderscience Publishers, USA; the International Journal of Multimedia and Ubiquitous Engineering, Science and Engineering Research Center (SERSC), USA; an associate editor of the Journal of Software Engineering, Academic Journals, Inc., USA; an editorial board member of the Open Software Engineering Journal, Bentham Science Publishers, Ltd., USA; an international editorial board member of the International Journal of Patterns. Dr. Hsiung has been on the program committee of more than 100 international conferences. He served as session organizer and chair for PDPTA'99, and as workshop/conference organizer and PC chair for RTC'99, DSVV'2000, PDES'2005, WoRMES'2009, ITNG'2010, ITNG'2011, ERSA'2011, ATVA'2011.He has taken an active part in paper refereeing for international journals and conferences. His main research interests include reconfigurable computing and system design, multi-core programming, cognitive radio architecture, System-on-Chip (SoC) design and verification, embedded software synthesis and verification, real-time system design and verification, hardware-software co-design and co-verification, and object-oriented application frameworks for real-time embedded systems.

RFID Campus for Special Education and Elementary Schools

In this talk, I will describe some projects that we conducted for helping special education and elementary schools in Taiwan. We applied innovative Radio Frequency Identification (RFID) systems to special education and elementary school campuses so that the existing digital gap in such schools can be bridged. Supported by the ministry of education in Taiwan, we successfully designed and deployed RFID technology to the campus of a special education school and an elementary school at Chiayi in Taiwan. Though the technology was applied to eight different use case scenarios, this talk will focus on five of the more innovative ones in this work, including student temperature monitoring (STM), body weight monitoring (BWM), garbage disposal monitoring (GDM), mopping course recording (MCR), and campus visitor monitoring (CVM). Both active and passive tags and readers were employed to implement these five systems within the same campus. The benefits obtained from these systems by the students, teachers, and administrators were three-folds. First, student health monitoring through STM and BWM systems allowed the teachers and administration real-time

control over changing health conditions that significantly affects such students. Second, course monitoring and recording through GDM and MCR allowed teachers to easily grasp and tune the learning curve of each student and also to implement a more guided training based on past learning efforts. Last but not least, campus safety monitoring through CVM allowed the administration to monitor the location of visitors in the campus and thus safeguard the students and teachers from dangerous or troublesome visitors. Novel techniques and creative methods were employed in the five systems, including temperature correction algorithm in STM, BMI-based weight tuning strategy in BWM, multiple route-tracking in GDM, learning improvement through history analysis in MCR, and face detection in CVM. The project was successfully deployed and is currently in use by the Chiayi School of Special Education which has more than 300 students and 150 administration staff and faculty. It was also deployed in the National Chiayi University Affiliated Elementary School.

I will also give a brief introduction to the other intelligent and adaptive systems research in our Department of Computer Science and Information Engineering, National Chung Cheng University, Taiwan.

Mr. Hsien-De Huang

National Cheng Kung University (PhD. Student, NCKU)

Hsien-De (TonTon) Huang received his M.S. degree in Dept. Information and Learning Technology (ILT) from the National University of Tainan (NUTN), Tainan, Taiwan, in 2008.Prof. Chang-Shing Lee (leader of Ontology Application & Software Engineering Laboratory., OASE Lab.) was his Master advisor, and co-advisor was Prof. Tsung-Yen Chuang. Since Sept. 2010, he has been a Ph.D. student of Dept. Computer Science and Information Engineering (CSIE) in National Cheng-Kung University (NCKU), Tainan, Taiwan. Prof. Chang-Shing Lee still is his advisor, and his co-advisor is Prof. Hung-Yu Kao. During 11/17/2008~09/28/2011, he has serviced his military Research and Development Substitute Service (RDSS) as an project assistant researcher at the National Applied Research Laboratories (NARL), National Center for High-Performance Computing (NCHC), Tainan, Taiwan. He is a visiting Ph. D student of The School of Computer Science and Electronic Engineering, Univ. of Essex from 10/15/2011 ~ 04/302/2012 based on the NSC financial support of the research project "2010 Initiative Research Cooperation among Top Universities between UK and Taiwan: Type-2 Fuzzy Ontology Model and Its Applications."

His major research interests are Ontology Applications, Malware Behavioral Analysis, Digital Forensics, Semantic Web, Social Network, and Artificial Intelligence. In 2009, he has developed a malware behavioral analysis tool: the Taiwan Malware Analysis Net+ (TWMAN+). If you are interested in the TWMAN+ and want to get further information, please visit http://TWMAN.ORG.

Type-2 Fuzzy Ontology Model and Its Applications (II)

Classical ontology is not sufficient to deal with vague or imprecise knowledge for real world applications such as malware behavioral analysis. In addition, malware has grown into a pressing problem for governments and commercial organizations. Anti-malware applications represent one of the most important research topics in the area of information security threat. As a countermeasure, enhanced systems for analyzing the behavior of malware are needed in order to predict malicious actions and minimize computer damages. Many researchers use Virtual Machine (VM) systems to monitor malware behavior, but there are many Anti-VM techniques which are used to counteract the collection, analysis, and reverse engineering features of the VM based malware analysis platform. Therefore, malware researchers are likely to obtain inaccurate analysis from the VM based approach. For this reason, we have developed the Taiwan Malware Analysis Net (TWMAN) which uses a real operating system environment to improve the accuracy of malware behavior analysis and has integrated type-1 fuzzy set (T1FS), ontology, and fuzzy markup language (FML). Indeed, many researches have shown that there are limitations to the ability of a T1FS to model and minimize the effect of uncertainties. This is because a T1FS is certain in the sense that its membership grades are crisp values. For this reason, we attempt to bridge this gap by using Interval Type-2 Fuzzy Set (IT2FS), eggdrop, and glftpd, as a cloud service (software as a service) on the Google App Engine along with Python and Android. We believe this system will help improve the correctness of malware analysis results and reduce the rate of malware misdiagnosis.

Professor Huey-Ling Shee
National Chung Cheng University (CCU)

Professor Huey-Ling (Amy) Shee obtained her LLM at LSE (1987) and PhD in law from Warwick University (1995), and since then she has been affiliated to National Chung Cheng University (CCU) in Taiwan. Apart from being a full-time Professor at the College of Law, Professor Shee also serves as the Director of University International Office and the Director of Taiwan Legal Information Institute (Taiwan LII). Her research interests are mainly on Family Law, Child Right Law, Sociology of Law, Legal Information, Comparative Law & Society, Law & Literature, etc. Prof. Shee has also set up the first Legal eLearning Center in 2006 to develop interactive teaching pedagogies and programs involving distance courses, e-Lectures, course websites, teaching platforms, multi-media lecture rooms and an inventive drama classroom. Consequent upon her accumulated work for the promotion of child right in Taiwan, Prof. Shee received the "Child Protection Angel National Award" certified by President Ma in 2010.

Professor Mei-Jen Lin
National Pingtung University of Science and Technology (NPUST)

Mei-Jen Lin received the Ph.D. degree in Food Biosciences from the University of Reading, Reading, UK, in 2002. She is currently an associate professor in the Department of Animal Science, National Pingtung University of Science and Technology, where she is the Vice Dean of the Office of Academic Affairs and the Director of the Center for Teaching Excellence. Her current research interests include milk quality control, dairy processing, fermentation of dairy products, and milk protein stability. Dr. Lin was awarded outstanding achievement in Teaching by College of Agriculture, NPUST in 2011. She is one of the founders of the Asian Partnership of Goat Affairs. She is also a member of the World Association of Animal Production (WCAP), the Asian-Australian Association of Animal Production (AAAP), the Chinese Society of Animal Science (CSAS), and the Taiwan Association for Food Science and Technology.

Professor Che-Hung Liu
National University of Tainan (NUTN)

Dr. Che-Hung Liu received his Ph.D degree in Decision Science and Information Management from Florida International University, United States, in 2009. He is currently an assistant professor of Department of Business and Management, National University of Tainan, Taiwan, and also the chief of academic cooperation division in Research and Development Office, National University of Tainan. His research interests include knowledge management, e-commerce, and cloud computing.