2018 TAIROS 國際論壇
TAIROS International Forum 2018

TAIROS 國際論壇邀集 美國 MICROSOFT IOT & AI Solutions、UL、澳門大學科技學院、國立中央大學電機系、美國約翰霍布金斯大學等多位國際機器人與人工智慧專家齊聚一堂，深度剖析產業趨勢和技術動態，預計將吸引國內外產業專業人士參與，連同 TAIROS 2018 展覽精彩引爆!你千萬不能錯過這場台灣智慧製造業年度最重要的展會!

論壇日程/Date

日期:2018 年 8 月 29 日 (三) 9:00-17:00

(8:30-9:00 上午場報到、13:00-13:30 下午場報到)

地點: 台北世界貿易中心南港展覽館 5 樓/504AB 會議室

對象：300 人，智慧自動化與機器人產業或對本論壇有興趣之先進。

主協辦單位/Organizers

指導單位：經濟部技術處

主辦單位：台灣智慧自動化與機器人協會、財團法人工業技術研究院、台灣機器人學會、國立中興大學

AI 專區共同主辦單位：中部科學工業園區管理局

報名方式/ Registration

1.線上報名網址：
http://www.tairoa.org.tw/seminar/vtGenerator.aspx?e=dgkrv1ajwjihbejwilvz

2.或請於 8 月 22 日(三)前將報名表回傳至 anna@tairoa.org.tw

活動聯絡人：台灣智慧自動化與機器人協會 李小姐：04-23581866#24

報名表

公司/單位名稱：			
姓 名		職 稱	
電 話		分 機	
手 機		E-mail	

活動議程/Program

學術場次/Academic Session

國際先進機器人與智慧系統研討會
International Conference on Advanced Robotics and Intelligent Systems
臺灣智慧型機器人研討會
National Conference of Advanced Robotics
主持人：蔡清池，國立中興大學特聘教授/台灣機器人學會理事長

Moderator：Dr. Ching-Chi Tsai，Distinguished Professor of Chung Hsing University/ President of RST

Time	Agenda	Speaker
09:20-09:30	Opening Ceremony 開幕禮	
09:30-10:20	Universal Approximation Capability of Broad Learning System and its Structural Variations	**Prof. C. L. Philip CHEN 陳俊龍** Chair Professor, Dean of Faculty of Science and Technology，University of Macau 澳門大學科技學院院長
10:20-11:10	A CNN and Fuzzy Control Based Blind Guidance Robot.	**Prof. Wen-June Wang 王文俊** Chair Professor, Department of Electrical Engineering, National Central University 國立中央大學電機系教授
11:10-12:00	Plenary Speech(III) TBD	**美國約翰霍布金斯大學** TBD
12:00-13:30	Break 中午休息	

產業場次/Industrial Session 機器人與 AI Robotics and AI

主持人：黃漢邦，國立臺灣大學特聘教授/台灣智慧自動化與機器人協會理事長

Moderator：Dr. Han-Pang Huang，Distinguished Professor of National Taiwan University/President of TAIROA

Time	Agenda	Speaker/Moderator
13:30-13:40	Opening Ceremony 開幕禮	
13:40-14:30	Plenary Speech(I) TBD AI 與機器手臂 AI and Robotic arm	邀請中
14:30-15:20	Plenary Speech(II) TBD AI 與軟體 AI and Software	MICROSOFT Rashmi Misra / GM IOT & AI Solutions
15:20-16:10	Plenary Speech(III) TBD 工業型與服務型機器人的標準驗證 Standard certification of Industrial Robot and Service Robot	UL Joe Bablo / Principle Engineer
16:10-17:00	General Discussion 綜合討論	

※主辦單位保有修改活動時間、地點或議程之權利

※中午不供餐，午餐請自理。

※本活動以英文發表，上午學術場次無提供口譯服務，下午產業場次提供中英同步口譯(戴耳機) (simultaneous interpreting with headpieces) (限量)，若有需要，現場報到請提供個人證件以換取耳機

演講專家介紹/ Keynote Speakers

Title:
Universal Approximation Capability of Broad Learning System and its Structural Variations

Speaker: C. L. Philip Chen 陳俊龍

FIEEE, FAAAS, FIAPR, FCAA, FHKIE EiC, IEEE Trans. on Systems, Man, and Cybernetics： Systems Chair Professor
Faculty of Science and Technology University of Macau, Macau, China
澳門大學科技學院院長

Abstract
After a very fast and efficient discriminative Broad Learning System (BLS) that takes advantage of flatted structure and incremental learning has been developed, this talk will discuss mathematical proof of the universal approximation property of BLS. In addition, the framework of several BLS variants with their mathematical modellings are given. The variations include cascade, recurrent, and broad-deep combination that cover existing deep-wide/broad-wide structures. From the experimental results, the BLS and its variations outperforms several exist learning algorithms on regression performance over function approximation, time series prediction, and face recognition databases.

Profile
Dr. Chen's research areas are in systems, cybernetics and computational intelligence. He is a Fellow of the IEEE, AAAS, and IAPR. He was the President of IEEE Systems, Man, and Cybernetics Society (SMCS) (2012-2013), where he also has been a distinguished lecturer for many years and received Outstanding Service Awards 4 times. Currently, he is the Editor-in-Chief of IEEE Transactions on Systems, Man, and Cybernetics: Systems (2014-). He has been an Associate Editor of several IEEE Transactions, and currently he is an Associate Editor of IEEE Trans on Fuzzy Systems, IEEE Trans on Cybernetics, and IEEE/CAA Automatica Sinica. He was the Chair of TC 9.1 Economic and Business Systems of IFAC (2015-2017). He is also a Fellow of CAA and Fellow of HKIE and an Academician of International Academy of Systems and Cybernetics Science (IASCYS). In March 2018, he is listed in world top 14 having the most highly cited paper in computer science area by WoS. In addition, he is an ABET (Accreditation Board of Engineering and Technology Education, USA) Program Evaluator for Computer, Electrical, and Software Engineering programs. University of Macau's Engineering and Computer Science programs receiving HKIE's accreditation and Washington/Seoul Accord is his utmost contribution in engineering education for Macau as the former Dean. During his deanship, the engineering and computer science programs both have been ranked at world top 200 in the Times Higher Education (THE) world university ranking. The computer science program is also ranked at world top 161 in the US News and World Report global university ranking. Dr. Chen received Outstanding Electrical and Computer Engineering Award in 2016 from his alma mater, Purdue University, West Lafayette, where he received his Ph.D. degree in 1988, after he received his M.S. degree in electrical engineering from the University of Michigan, Ann Arbor, in 1985.

Title:
A CNN and Fuzzy Control Based Blind Guidance Robot.

Speaker: Prof. Wen-June Wang 王文俊

Chair Professor, Department of Electrical Engineering, National Central University

國立中央大學電機系教授

Abstract

In this talk, I will introduce the robot for blind guidance in which the structure of the robot and the functions owned by the robot will be reported. It is emphasized that the robot is designed for guiding the blind walking in NCU campus. When we set the destination in the cell phone, the robot can go to the destination from the starting point autonomously. During the moving process, the robot can detect the region of road, avoid the obstacle and move forward by taking the right side of the road. There is just one web-cam to measure the distance between the obstacle and the robot and to recognize the road region too. The depth distance estimation for the front obstacle is using a single image with a deep convolutional neural network (DCNN) and a back propagation neural network (BPNN). The road recognition is based on the ENet structure without worrying about the brightness and the color of the road. When the robot moves on the way, it uses fuzzy rules to control the moving direction for avoiding obstacles and keeping the moving at the right side of the road. The main contribution is that this robot just use one web-camera, one computer with GPUs and a cell phone, then it becomes a helpful blind guidance robot.

Profile

Wen-June Wang received the Ph.D. degree in the Institute of Electronics from National Chiao-Tung University, Taiwan in 1987. Dr. Wang is presently a Chair professor in the department of Electrical Engineering, National Central University, Taiwan. He was a visiting scholar for one year in the Department of Mechanical Engineering, Georgia Institute of Technology, USA in 1994 and a half year at the University of Louisville, Kentucky, USA, from September 2016 to February 2017. Furthermore, he was the Dean of the College of Science and Technology, National Chi Nan University, Puli, Taiwan from 2005 to 2007, and the Dean of the College of Electrical Engineering and Computer Science, National Central University, Taiwan from 2011 to 2014, and served as the Dean of Research and Development Office, National Taipei University of Technology, Taiwan from 2007 to 2009. Until today, Dr. Wang has published more than 165 journal papers and 160 conference papers. He also received three times of the Distinguished Research Award from the Ministry of Science and Technology in Taiwan. From 2003 to 2006, he was the convener of the Control Engineering Group of Ministry of Science and Technology in Taiwan.

Dr. Wang was elected as an IEEE Fellow and IFSA (International Fuzzy Systems Association) Fellow, and CACS (Chinese Automatic Control Society, Taiwan) Fellow. He serves or served as the editorial board of many IEEE Transactions, including IEEE Trans. on Systems, Man, and Cybernetics, Part-B; IEEE Trans. on Fuzzy Systems; and IEEE Trans. on Cybernetics. Currently he is the Advisory Board of IEEE Trans. on Fuzzy Systems. He also serves or served the other international journal such as International Journal of Electrical Engineers, Asian Journal of Control, and International Journal of Fuzzy Systems (IJFS) and Journal of the Chinese Institute of Engineers (JCIE). Prof. Wang was selected as a Distinguish lecturer of IEEE Region 10 in 2012 and 2018. He just removed the position of the Vice President of IEEE Taipei section in December, 2016. He was also the Vice President of IFSA (International Fuzzy Systems Association). His research interests include the areas of fuzzy systems, automatic control systems, robotics, and machine learning. etc..

Title: (TBD)

Speaker: **Rashmi Misra**

GM IOT & AI Solutions, PDS at Microsoft

Abstract(TBD)

Profile

Results driven senior executive with experience in international strategic business development with communications service providers, enterprises and media organisations.

Substantial telecommunications services management experience in system integration portfolio, managed services and consultancy businesses. Product, software and engineering management of telecommunications products and solutions. Track record in innovation, business turnaround and growth creation.

Six international patents in areas of: telecommunications network performance optimisation, content and data applications, data throughput algorithms.

Background and PhD in Artificial Intelligence, Machine Learning, Data Analytics, Natural Language Processing.

Title: Robot Standard certification(TBD)

Speaker ：Joseph Bablo

Primary Designated Engineering Manager - Energy Storage and E-Mobility at UL LLC

Abstract(TBD)

Profile(TBD)

Currently I serve as Primary Designated Engineering (PDE) Manager for the Energy Storage and E-Mobility team. I am responsible for a team of technical experts dealing with standards development and product certification involving batteries, energy storage technologies, battery second life, solar power, and battery chargers (industrial, automotive and electric vehicle).

Additionally, I serve as the PDE for Automotive Equipment and Associated Technologies, including diagnostic test equipment and electric vehicle charging equipment. In relation to these areas, I act as the primary standards development person for safety standards in regard to fire, shock, and injury to persons.

As part of my role, I serve as the TC69 Chair of the USTAG and technical advisor for the US delegation to TC69. This group is involved with the development of the IEC 61851 series, IEC 61980 series, and IEC62840 series of standards among others.

Additionally, I serve as principal member of the Code Making Panel 12 for the National Electrical Code, NFPA 70.