Symposium on Innovation & Technology 創新科技論壇

When Two Worlds Collide: The Confluence of Digital Twins & Real-Life Applications

數位孿生 連結虛實世界

Date 日期 : 14 / 10 / 2024 (Monday 星期一)

Time 時間 : 10:30AM – 12:45PM

Venue 地點 : Theatre I, Hong Kong Convention and Exhibition Centre
香港會議展覽中心演講廳 1

Language 語言 : English with Simultaneous Interpretation in Putonghua
英語 (附設普通話即時傳譯服務)

Remarks 備註 : Free admission (Click here or scan the QR Code to register);
CPD credits available
免費登記 (按此或掃描二維碼登記)；可申請持續進修專業學分

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Time 時間	Tentative Programme Rundown 暫擬程序表
10:00AM – 10:30AM	**Registration 登記**
10:30AM – 10:40AM	**Welcome Remarks 歡迎辭** By **Mr Alvin Lee**, Chairman, Hong Kong Electronics & Technologies Association 香港電子科技商會 主席 **李偉業先生**
	Opening Remarks 開幕辭 By **Ir Tony Wong, JP**, Commissioner for Digital Policy, Innovation, Technology and Industry Bureau 創新科技及工業局 數字政策專員 **黃志光先生, JP**
	Group Photo 嘉賓合照
10:40AM – 11:00AM	**Highlight of Technology Cores and the Way Facing Deep Learning Impact** **簡介深度學習的核心技術及面向其對我們的衝擊** **Speaker 演講嘉賓:** **Prof Wan-Chi Siu,** Emeritus Professor, The Hong Kong Polytechnic University and Research Professor (SCIS), St. Francis University 香港理工大學 榮休教授 及 聖方濟各大學 研究教授 **蕭允治教授**
11:00AM – 11:20AM	**Digital Technologies Shape Smarter, More Sustainable and More Productive Cities** **Speaker 演講嘉賓:** **Mr Michael Kwok,** Chairman East Asia Region, Arup 奧雅納工程顧問 東亞區主席 **郭家耀先生**
11:20AM – 11:40AM	**The Transformative Power of AI in the New Era of Life and Manufacturing** **Speaker 演講嘉賓:** **Dr Kenneth Fung**, R&D Director, ASMPT Limited (SEMI Solutions Segment) ASMPT 半導體解決方案 研發部總監 **馮順明博士**

11:40AM – 12:00NN	**Wireless Communications Technologies Promote Digital Twins and Applications** **無線通訊技術促進數位孿生及其應用** ASTRI Hong Kong Applied Science and Technology Research Institute 香港應用科技研究院 **Speaker 演講嘉賓:** **Dr Justin Chuang**, Vice President, Hong Kong Applied Science and Technology Research Institute 香港應用科技研究院 副總裁 **莊哲義博士**
12:00NN – 12:20PM	**Case Studies of Innovation & Technology Applications for Humanity** **Speaker 演講嘉賓:** IEEE **Kathy Hayashi**, Director, IEEE Region 6
12:20PM – 12:45PM	**Panel Discussion and Q&A Session 討論及問答環節** **Moderator 主持:** **Dr Paulina Chan**, Chair, Organising Committee, Symposium on Innovation & Technology, Hong Kong Electronics and Technologies Association 香港電子科技商會 創新科技論壇籌備委員會 主席 **陳彥碧博士**
1:00PM – 2:30PM	**Networking Luncheon 交流午宴** **Venue 地點**: Golden Bauhinia Sang Kee Cantonese Restaurant (by Invitation only and hosted by HKETA 由香港電子科技商會宴請)

Remarks 備註: The Organisers reserve the right to amend the symposium programme without prior notice. 主辦單位有權更改論壇程序表而不作另行通知。

Organisers 主辦機構

HKTDC 香港貿發局
HONG KONG ETA HONG KONG ELECTRONICS & TECHNOLOGIES ASSOCIATION 香港電子科技商會

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The Education University of Hong Kong - Knowledge Transfer Sub-office
The Hong Kong Electronic Industries Association Limited
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CPD Credit Application 持續進修專業學分申請

- 2 hours of CPD would be obtained for participants who have attended the event on time.
  準時出席論壇之觀眾將可獲得 2 小時持續進修專業學分。
- The CPD credits are to be endorsed by the Hong Kong Electronics & Technologies Association (HKETA). Applicants agreed to share the name and email with the HKETA under such practice.
  是次論壇之持續進修專業學分由香港電子科技商會頒發。申請者需同意其登記姓名及電郵資料將被分享至其會中資料庫。
- The CPD credits will be issued by digital means. Upon the event completion, attendees who would like to obtain CPD e-certificate are required to register at the reception desk located at the entrance of Theatre I). The e-certificates will be sent to registrants via email if they were deemed qualify.
  持續進修專業學分將以電子形式發放。有意領取學分者須先於論壇完結後在演講廳 1 入口的接待處登記，而電子證書則會在確認後發送到登記電郵。

Prof Wan-Chi Siu 蕭允治教授

Emeritus Professor, Hong Kong Polytechnic University and Research Professor (SCIS), St. Francis University
香港理工大學 榮休教授 及 聖方濟各大學 研究教授

About the Presentation

In this presentation, we start with an elaboration on the mechanism of some AI and deep learning techniques and the reasons behind their success. These include strategical policy of training, hierarchical network design, algorithm tricks and concept of Latent Space in Deep Learning, whcih form structures, including CNN, ResNet, ..., GAN (Generative Adversarial Network), StyleGAN, Diffusion models, Transformer, and our newest development on Domain Transfer in Latent Space (DTLS), suitable for a large number of applications, such as image/video super-resolution, object manipulations and understanding, traffic control, language translation, robotic navigation, chatbot design, and various commercial applications. The development started from initial deep learning, and moves to new generative AI with GAN, diffusion models, and domain transform model. We will then have a discussion on how companies or individuals could face such a new wave of technology challenge. Our advice is to ask companies to have a careful Deployment of their staff and a policy on company positioning, and individuals to look for proper Continuing Education. Universities should help such a move, besides training all their new graduates to have some necessary knowledge in AI and Deep Learning. At the end of the presentation, fruitful demonstrations will also be provided.

About the Speaker

Professor Wan-Chi Siu is Emeritus Professor (former Chair Professor, HoD(EIE) and Dean(ENG)) of Hong Kong Polytechnic University and Research Professor (SCIS) of St. Francis University, HK. He is IEEE Life-Fellow and was a PhD graduate (1984) of Imperial College London, Vice President, IEEE SP Society (2012-2014), and President (2017-2018), APSIPA. He has been Guest Editor/Subject Editor/AE for IEEE Transactions on CAS, IP & CSVT, and Electronics Letters, and Advisor & Distinguished Scientist of European Commissions research project SmartEN. He is one of the world's top computer scientists with many awards, including IEEE Third Millennium Medal (2000), Distinguished Presenter Award, Best Teacher Award and Best Faculty Researcher Award (twice). Prof. Siu has been Keynote Speaker and Distinguished Lecturer of many events such as recently Keynote Speaker, APSIPA-ASC' 2023, Taipei; and Chief Technical Speaker, 2024 IEEE TryEngineering, HK. He published over 500 research papers in DSP, computer vision and deep learning, and organized IEEE society-sponsored flagship international conferences including TPC Chair (ISCAS1997) and General Chair (ICASSP2003 and ICIP2010). He was an independent non-executive director (2000-2015) of a publicly-listed video surveillance company and chaired the First Engineering-IT Panel of the RAE(1992/93) in HK. Recently, he has been member of IEEE Fourier Award Committee (2017-2020), HK ASTRI Tech Review Panel (2006-2024), HK RGC Engineering-JRS Panel (2020-2026), etc.

Mr Michael Kwok 郭家耀先生

Chairman East Asia Region, Arup

奧雅納工程顧問 東亞區主席

About the Presentation

The challenges we face in the Built Environment are profound. The need to meet the equitable needs of 10bn humans – including attractive and liveable cities, on-going urbanisation, the provision of decent habitation, energy, transport etc for all. The imperative of living within planetary boundaries – decarbonise and restore nature and the necessity of galvanising a sector with stuck productivity. We already see how increasingly sophisticated digital and AI solutions are driving tangible positive outcomes across the built environment. The need to progress towards a net zero world while navigating uncertainty and improving performance can only be met by digital. The presentation aims to demonstrate some of the latest examples where advanced digital solutions were adopted to address these challenges.

About the Speaker

Ir Michael Kwok is the Chairman of Arup East Asia Region. A structural engineer by profession, during his 38-year career at Arup he has completed the design of many major projects in Hong Kong including the Hong Kong International Airport, Hong Kong University of Science and Technology, West Rail and in mainland China for the Beijing 2008 Olympic Games, including the National Stadium, CCTV Headquarter Building and Beijing Capital International Airport Terminal 3. Ir Kwok is a Fellow of Hong Kong Academy of Engineering Sciences. As a leader of Arup Ir Kwok has been promoting sustainable development to shape a sustainable future with clients and communities by focusing on the changing needs, collaborating at every opportunity and embracing digital innovation as the key enabler.

Dr Kenneth Fung 馮順明博士

R&D Director, ASMPT Limited (SEMI Solutions Segment)

ASMPT 半導體解決方案 研發部總監

About the Presentation

Artificial Intelligence (AI) has emerged as a transformative force, revolutionizing industries and reshaping our lives in the new era. This transformative ability comes from the use of tremendous computing power alongside unique and innovative software solutions to accelerate data (especially LLM) processing. An AI accelerator can be at least an order of magnitude more capable of processing data than a powerful notebook computer.

Attendees will gain insights into how the Hardware in these devices is arranged and assembled. It will explore how Heterogeneous Integration of Integrated Circuits (logic, memory, passives…) is transforming the computing world and how modern Semiconductor Assembly tools are engineered to enable this integration.

About the Speaker

Dr. Kenneth Fung is a dynamic R&D Director at ASMPT Limited (SEMI Solutions Segment) with extensive experience in the semiconductor assembly and packaging industry, specializing in algorithm development for AI Vision Technology. He has a proven track record of leading innovative research projects that drive technological advancements and enhance product performance. He holds a Ph.D. in Engineering from the University of Hong Kong, providing a strong foundation for his work in AI applications and allowing him to integrate advanced AI

solutions into production systems effectively. His current role oversees research initiatives that significantly improve efficiency and reduce defects in manufacturing processes.

Dr Justin Chuang 莊哲義博士

Vice President, Hong Kong Applied Science and Technology Research Institute
香港應用科技研究院 副總裁

About the Presentation

5G is more than just a connectivity upgrade, it is also a catalyst for innovation in digital twin applications. This presentation will explore how 5G supports the application of digital twin technology through high-speed, low-latency communications and massive IoT.

First, the presentation will discuss the interdependence between 5G and digital twins, highlighting their potential to bring new opportunities to various industries together. Then, it will introduce how ASTRI is innovating technology and customizing applications to address industry pain points. Finally, the presentation will explore the future of the technology, especially the integration of artificial intelligence (AI) and digital twins to improve human life, including an introduction to ASTRI's research direction for 6G evolution.

5G 不僅僅是一種連接升級，更是數字孿生應用創新的催化劑。本次演講將探討 5G 如何通過高速、低延遲通信和大規模物聯網支持數字孿生技術的應用。

首先，演講將討論 5G 與數字孿生之間的相互依存關係，强調它們共同爲各個行業帶來新機遇的潛力。然後，將介紹應科院如何針對業界痛點進行技術創新和定制應用。最後，演講將探討該技術的未來，特別是人工智能 (AI) 與數字孿生的融合，以改善人類生活，包括介紹應科院 6G 演進的研究方向。

About the Speaker

Dr Justin Chuang joined ASTRI in December 2011 with nearly three decades of experiences in research, teaching, development and engineering in communications technologies.

He received BSc in Electrical Engineering from National Taiwan University in 1977, and MSc and PhD, also in Electrical Engineering, from Michigan State University in 1980 and 1983, respectively. He has served as a Professor in the Department of Electrical and Electronic Engineering (now ECE Dept.) of the Hong Kong University of Science and Technology (HKUST) from 1993 to 1996. Furthermore, he was elected an IEEE Fellow in 1997 and as a 2023 Fellow of Hong Kong Academy of Engineering Sciences.

Since joining ASTRI, Dr Chuang and his team are leveraging the collaborative efforts among government, industry, university and research organizations to drive the advancement and commercialization of enabling technologies for 4G, 5G and beyond. Specifically, his team currently provides open platforms to enable affordable and customizable solutions, such as end-to-end 5G and smart mobility technologies for current and future applications.

莊哲義博士於 2011 年 12 月加入應科院，之前在通訊技術的研究、教育、發展 和工程等方面擁有接近 30 年經驗。

莊博士於 1977 年在國立台灣大學取得電機工程理學士學位，並於 1980 年及 1983 年在美國密西根州立大學分別取得電機工程理學碩士及博士學位。 他於 1993 至 1996 年期間在香港科技大學擔任電機電子工程系(現在名稱為電子及計算機工程系) 的教授。此外，他亦於 1997 年獲國際電機電子工程師學會（IEEE）頒授會士榮銜及獲選為 2023 年香港工程科學院院士。

自加入應科院以來，莊博士帶領他的團隊通過政府、企業、大學和研究機構之間的合作，努力推動 4G、5G 和未來通訊技術的發展和商用。具體來說，他的團隊目前提供開放平台，以實現經濟實惠且可定制的解決方案，例如面向當前和未來應用的端到端 5G 和智能移動技術。

Kathy Hayashi
Director, IEEE Region 6

About the Speaker

Kathy Herring Hayashi has been involved in the semiconductor industry her entire career — developing, deploying, and analyzing advanced software tools used to create computer and mobile phone chips. At Unisys, she was on the team that created one of the first Sperry mainframes on a chip using custom software. She has since worked for Cadence Design Systems and Syntricity, a local startup focused on yield analysis. She is now at Qualcomm, working with semiconductor workflows in large-scale compute environments. She is currently the IEEE Director of Region 6 (Western Region of the United States) and a member of the IEEE Board of Directors. She is a senior member of IEEE and IEEE-HKN (IEEE Honor Society).

Dr Paulina Chan 陳彥碧博士
Chair, Organising Committee, Symposium on Innovation & Technology, Hong Kong Electronics and Technologies Association

About the Moderator

Paulina is a global citizen. She has received a PhD in EEE and DIC from Imperial College London, and MBA from University of London. Dr Chan is the Principal and CEO of Global Mutual Consortium, an international think-tank on tech-biz collaboration strategy and innovation business development. Paulina is a strong advocate in STEM education for the youth.

Dr Chan has been the Managing Director and expatriate of AT&T/Lucent Technologies (US, Asia/Pacific, the EU): Project Director of Exxon/Mobil Corporation Headquarters (New York); China Regional General Manager and expatriate of ICO Global Satellite Communications (London, Beijing).

On leadership and management, Paulina is a Chartered Manager (CMgr) and has been awarded Chartered Companion (CCMI) of the Chartered Management Institute, Hqs the UK. She has been a member on the CMI Board of Trustees and the Chair of CMI Regional Board of Directors in Hong Kong. On technology, Paulina is a Senior Member of IEEE, Hqs the US. She has been the Chair of IEEE Hong Kong Section, Chair of the Public Visibility Board, and Member of the Global Public Policy Caucus. She is Chair-elect of the IEEE DEI Board and the Champion of the TryEngineering-on -Campus for pre-university students.

Motiving young professionals, Paulina is Champion of the Mentoring Programme for Imperial College Alumni Association of Hong Kong. Founding Chair of Imperial Women in World Digital Signal Processing and former Imperial Ambassador.