SYMPOSIUM ON INNOVATION & TECHNOLOGY 創新科技論壇

REVIVE & THRIVE 生機展現 邁步向前

Date 日期 : 27 / 10 / 2021 (Wednesday 星期三)

Time 時間 : 10:30am – 4:10pm / GMT+8

Venue 地點 : The STAGE, Hong Kong Convention and Exhibition Centre & Online Streaming 香港會議展覽中心 The STAGE 及 線上直播

(Attendants are welcomed to participate the event in either format

歡迎參會人士以親身或網上形式出席)

Language 語言 : English and Putonghua (With simultaneous interpretation service)

英語及普通話（附設即時傳譯服務）

Remarks 備註 : Free admission (Please click HERE to register online), CPD Available

免費登記 (請「按此」登記)，可申請持續進修學分

Tentative Program

	TOPICS
AM SESSION	
10:30AM – 10:33AM	**Welcome Remarks by Mr Victor Choi, Chairman, Hong Kong Electronics & Technologies Association** 香港電子科技商會主席 蔡劍誠先生致歡迎辭
10:33AM – 10:38AM	**Opening Remarks by Mr Alfred Sit Wing-hang, JP, Secretary for Innovation and Technology** 香港創新及科技局局長 薛永恒 JP 致開幕辭
10:38AM – 10:40AM	**Group Photo** 嘉賓合照
10:40AM – 11AM	**Trend Forecast**
11AM – 11:20AM	**5G/6G and the Tactile Internet** Prof Gerhard Fettweis, PhD, Vodafone Chair Professor Dresden University of Technology, Germany (德國德累斯頓工業大學)
11:20AM – 11:40AM	**Looking to 6G and the wireless future in 2030 – The move to Sub-Terahertz mobile communications** Prof Theodore S. Rappaport, David Lee/Ernst Weber Professor, New York University (NYU) (美國紐約大學)
11:40AM – 12NN	**Blockchain** Dr Lucas Hui, Chief Technology Officer, ASTRI 香港應用科技研究院首席科技總監許志光博士
12NN – 12:45PM	**Panel Discussion**

	Moderator info to be advised Panellists: Speakers of the Symposium (Both AM & PM Sessions)
PM SESSION	
2:30PM – 2:50PM	**Internet-of-Intelligent-Things in the Era of 6G – Several Key Technology Challenges** **面向 6G 的智能物聯網：若干關鍵技術挑戰** Dr Wai Chen, Chief Scientist, China Mobile Research Institute 中國移動研究院首席科學家 陳維博士
2:50PM – 3:10PM	**Clean Energy**
3:10PM – 3:30PM	**Virtual World**
3:30PM – 3:50PM	**The New Space Era: An Overview** Dr Stephen W. Cheung, Adjunct Professor of Physics, The University of Hong Kong / International Council Member, Orion Astropreneur Space Academy-Hong Kong 香港大學物理系客座教授 /創星滙(香港) 國際理事會成員 張華坤博士
3:50PM – 4:10PM	**AI & Deep Learning**

SYMPOSIUM ORGANISERS:

Souvenir Redemption is available for onsite attendants

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Hong Kong Applied Science and Technology Research Institute Company Limited
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Hong Kong IoT Alliance
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The Hong Kong Institution of Engineers (Electronics Division)
The Hong Kong Polytechnic University - Department of Electronic & Information Engineering
The Hong Kong Research Institute of Textiles and Apparel
The Hong Kong University of Science & Technology - Department of Electronic & Computer Engineering
The Information and Software Industry Association
The Institution of Engineering and Technology
The University of Hong Kong - Department of Electronic & Electrical Engineering

Prof Theodore S. Rappaport, David Lee/Ernst Weber Professor,
New York University (NYU) 美國紐約大學

About the Presentation

This talk will look at the recent global interest and accomplishments that are pushing mobile communications to the frequencies above 100 GHz. Recent regulatory developments, combined with growing engineering knowledge and confidence in today's 5G millimeter wave technology, will lead the way for wireless networks in the coming two decades. With the move to Terahertz spectrum, wireless will, in the next 15 years, allow real-time data communications at the rate of the human brain, unleashing new applications never before imagined.

About the Speaker

Theodore S. Rappaport is the David Lee/Ernst Weber Professor at New York University (NYU) and holds faculty appointments in the Electrical and Computer Engineering Department, the Courant Computer Science Department, and the NYU Langone School of Medicine. He founded NYU WIRELESS, a multidisciplinary research center, and the wireless research centers at the University of Texas Austin (WNCG) and Virginia Tech (MPRG). His research has provided fundamental knowledge of wireless channels used to create the first Wi-Fi standard (IEEE 802.11), the first U.S. digital TDMA and CDMA standards, the first public Wi-Fi hotspots, and more recently proved the viability of millimeter-wave and sub-THz frequencies for 5G, 6G, and beyond. He is a member of the National Academy of Engineering, is a Fellow of the National Academy of Inventors, and was elected to the Wireless History Foundation Hall of Fame in 2019.

Dr Wai Chen, Chief Scientist, China Mobile Research Institute
中國移動研究院首度科學家 陳維博士

Abstract of the Presentation

6G is expected to bring networking technologies with higher throughput, massive connections, and pervasive coverage in highly-dynamic environments to fulfill diverse application requirements. It is believed that AI will be a central driver in the evolution towards 6G, and 6G will enable a new generation of Internet-of-Intelligent-Things (IoIT) applications that require ultra-low delay and ultra-high reliability, such as future intelligent transport systems (ITS) and smart cities. Such IoIT applications will likely depend on intelligent agents to dynamically collaborate on massive scales to solve complex distributed challenges.

This talk will first give a high-level view of IoIT and highlight two R&D directions of future developments: network optimizations and intelligent services. This will be followed by an overview of several technical fields involved in the IoIT such as the new machine learning paradigm, the knowledge map technology and the heterogeneous collaborative computing architecture which all need further technical breakthroughs. The talk will then highlight major challenges, in network optimizations as well as in intelligent services, with potential uses of machine intelligence.

6G 技術將提供更高的速率、更多的連接，以及更廣的網絡覆蓋，以滿足在高度動態環境中的各類應用需求。人工智能（AI）是推動 6G 不斷演進的核心技術，而 6G 也將會使能一系列需要超低時延、超高可靠的未來智能物聯網應用（Internet-of-Intelligent-Things，IoIT），如未來智能交

通系統（Intelligent Transport Systems，ITS）、智慧城市等，這些應用將依賴于多智能體協作技術實現分布式複雜任務。

本次報告從智能物聯網的概念入手，重點提出關於智能物聯網的兩個前沿研究方向，一是網絡智能化，二是智能化服務。之後，展開介紹關於智能物聯網的幾個核心技術領域，如新型機器學習範式、物聯網知識圖譜、異構協同計算架構等。最後，將分享關於網絡智能化、智能化服務方面的技術挑戰，以及智能物聯網核心技術的潛在應用場景。

About the Speaker

Dr Wai Chen is currently Chief Scientist of China Mobile Research Institute, where he leads the research on Internet-of-Things (IoT) at China Mobile. The IoT research initiatives currently focus on machine intelligence, edge computing, C-V2X, smart senior-care, among others. Dr Chen has over 30 years of experiences in research and development of advanced technologies, including 20-plus years in Bellcore / Telcordia where he was a Chief Scientist and Director.

陳維，國家特聘專家，現任中國移動研究院首席科學家，擁有 30 多年前瞻技術研究經歷，包括 20 多年在美國貝爾通訊研究院（Bellcore/Telcordia）並擔任首席科學家和 Director 的工作經歷，主要研究領域為機器智能、邊緣計算、下一代車聯網及智能交通等。自 2012 年應邀來華，帶領研究團隊構建了包括機器智能、邊緣計算、下一代車聯網、智慧養老等物聯網智能化關鍵技術及應用體系，研發了一批"面向全國、惠及民生"的創新型規模化物聯網應用。

Dr Stephen W. Cheung, Adjunct Professor of Physics, The University of Hong Kong / International Council Member, Orion Astropreneur Space Academy-Hong Kong
香港大學物理系客座教授 /創星滙(香港) 國際理事會成員 張華坤博士

Abstract of the Presentation

This talk is an overview of New Space with focus on Low Earth Orbit (LEO).

Space is rapidly becoming a new pillar of the 21st century infrastructure with enormous economic implications. Presently, orbiting satellites serve downstream users by relaying enormous amounts of data globally while generating streams of information from observing the Earth. Our daily life would be tremendously disrupted if our data networks malfunctioned even for an hour.

Synonymous with Commercialization of Space, the New Space era began around two decades ago. Innovations have been driving down the cost of access to space. Space is no longer reserved for superpowers with big rockets. Lowering launch costs and miniaturized spacecraft, coupled with changing government policies, have accelerated the pace of commercialization and it has been happening most notably in the LEO. Dozens of countries large and small now have mini space programs training space technologists and sending small satellites to the LEO.

The summer of 2021 also witnessed the dawn of Space Tourism when two companies, Blue Origin and Virgin Galactic, flew private citizens to the edge of space and returned safely on vehicles that are designed for reusability. The price tag of touring space is expected to come down this decade as more passengers sign up for the experience.

China has a number of active space programs. Explorations include sending humans and instruments to the Moon and Mars. By the middle of this decade, the China Space Station will be in the LEO and Taikonauts will be shuttled regularly on scientific missions. LEO satellite constellations have also been planned as part of an expanding infrastructure.

Hong Kong is a major hub of data communications in the world and is well positioned to build on opportunities downstream of the rapidly developing space ecosystem.

About the Speaker

Dr Stephen W. Cheung is a frequent speaker at HKETA and other events. He is currently VP with a private group in the Silicon Valley, Adjunct Professor of Physics at the Hong Kong University and International Council member of the Orion Astropreneur Space Academy of Hong Kong.

Educated in the US, his career began as a research scientist at a NASA funded satellite program at Stanford University. He later joined Varian Medical Systems, a major supplier of radiation therapy systems—use of high energy X-rays to treat cancers. From 2007 to 2013, he was Director of Microwave Systems at Accuray Inc., a Silicon Valley company using robots to deliver precision radiation therapy. He was principal investigator of special projects funded by the government that earned Accuray a national award in 2013. He holds five US patents related to X-rays and is author of two books in microwave technology.

Dr Cheung worked in Hong Kong from mid-1990s to mid-2000s. He was general manager of the Electronics Division at the Hong Kong Productivity Council and later VP of a consumer electronics manufacturer.