# <u>"Symposium on Innovation & Technology " 「創新科技論壇」</u>

Intelligent Connectivity: 5G and Beyond

# 智慧互聯-5G 與未來拓展

#### 5G is NOW!

The rollout of the 5G cellular network and its associated technologies is set to trigger a wave of innovation in applications and services, creating huge new opportunities for businesses around the world. Stakeholders from different industries will find themselves in a dramatically different – and potentially more competitive – world, with innovative new business models being created to provide customers with more personalised services.

5G is no longer a fantasy beyond our reach. What is coming with 5G and how to take full advantage of this technological revolution?

#### 5G 科技就在眼前!

5G 將會引領新一輪創科項目開創,由技術應用至產品服務開拓等各方面,都潛藏不同商機。同時,5G 亦能令各品牌 產品服務變得更個人化,切合不同顧客所需。我們要如何有效引進技術,踏出成功第一步?當5G已經近在眼前,我 們又該如何裝備自己,搶佔先機?

Date 日期	:	14 / 10 / 2019 (Monday 星期一)
Time 時間	:	10:30am – 4:30pm
Venue 地點	:	Theatre I, Hong Kong Convention & Exhibition Centre 香港會議展覽中心 演講廳一
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) 免費登記 (請「按此」登記)

Time 時間	Proposed Programme 草擬程序表	
10am – 10:30am	Registration 登記	
AM Session		
10:30am – 10:33am	Welcome Remarks by Mr Victor Choi, Chairman, Hong Kong Electronics & Technologies	
	Association	
10:33am – 10:38am	Opening Remarks by the Hon Nicholas W. Yang, GBS, JP, Secretary for Innovation and	
	Technology	
10:38am – 10:43am	Group Photo 嘉賓合照	

Remarks 備註:

- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

<sup>-</sup> Free admission. Seats are granted on a **first-come-first-served basis**. 免費入場。座位有限,**先到先得**。

<sup>-</sup> The Organiser reserves the right to make any changes without prior notice. 主辦機構保留任何更改之權利而不作另行通告。

10:43am – 11:03am	Key Opportunities and Challenges Facing 5G
	Mr Wilson Chow, PwC Global Technology, Media and
	Telecommunications Industry Leader
	羅兵咸永道全球 TMT 行業主管合夥人 周偉然先生 PVVC
11:03am – 11:23am	Low Barrier Access to Disruptive Technologies for the Future
	Generation of Wireless Communication
	Mr Peter Lemmens, Director of Imec Innovation Services, imec
	imec 創新服務處長 雷孟思先生
11:23am – 11:43am	Unlocking the Potential of 5G
	Mr K L Ho, SVP, Strategic Wireless Technology and Project Office, HKT
	香港電訊有限公司無線技術策略及項目管理 何啟亮先生
11:43am – 12:03pm	The giant leap: 5G now and beyond
	Mr Michael Chang, CTO, Customer Operations, Greater China,
	Nokia Networks NOKIA
	諾基亞通信大中華區客戶運營首席技術官 常疆先生
12:03pm – 12:33pm	Panel Discussions
	Moderator: Dr Khaled B. Letaief, FIEEE, FHKIE, New Bright Professor of Engineering
	Hong Kong University of Science and Technology
	Speakers of AM / PM sessions
12:33pm – 2:15pm	Networking Luncheon organised by HKETA @ S221 (by invitation only)
PM Session	
1:45pm – 2:15pm	Registration 登記
2:15pm – 2:40pm	5G+ Solutions
	Mr Alex Cheng, Principal Engineer, 位国移动
	Network Planning & Implementation, China Mobile Hong Kong Co. Ltd. China Mobile
	中國移動首席工程師 鄭啟良先生
2:40pm – 3:05pm	Accelerate Cellular V2X Technology for Connected Car Applications
	Mr Andrew Ko, Expert Application Consultant,
	KeySight Technologies Hong Kong Limited
	是德科技香港有限公司專家技術顧問 高育財先生
3:05pm – 3:30pm	Smart City and Smart Future: Powered by 5G
	5G 起動:智慧城市 - 智慧未來
	香港應用科技研究院副總裁(通訊技術) 莊哲義博士

- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。
  The Organiser reserves the right to make any changes without prior notice. 主辦機構保留任何更改之權利而不作另行通告。

<sup>&</sup>lt;u>Remarks 備註:</u> - Free admission. Seats are granted on a **first-come-first-served basis**. 免費入場。座位有限,**先到先得**。

3:30pm – 3:55pm	Compute in the Era of 5G Mr Tong Liu, GM, Al industries, NVIDIA China 英偉達公司高性能計算與新興業務中國區總經理 劉通先生	
3:55pm – 4:20pm	Collaborating for a Smarter Hong Kong Today - Smarter Digital City 3.0 Mr Timothy Tam, Head of Public Policy and Government Affairs (Hong Kong), Google Google 公共政策及政府事務總監(香港) 譚雨川先生	
4:20pm – 4:30pm	Group Photo 嘉賓合照	

## Organisers:



Sponsor:



Supporting Organisations
Business Environment Council
City University of Hong Kong - Department of Electronic Engineering
GS1 Hong Kong
Hong Kong Applied Science and Technology Research Institute Company Limited
Hong Kong Electronics Industry Council
Hong Kong IoT Alliance
Hong Kong Medical and Healthcare Device Industries Association
Hong Kong Productivity Council
Hong Kong Science and Technology Parks Corporation
Hong Kong Wireless Technology Industry Association
IVE - Engineering Discipline
Logistics and Supply Chain MultiTech R&D Centre
Smart City Consortium
The Automotive Parts and Accessory Systems (APAS) R&D Centre
The Chinese University of Hong Kong - Department of Electronic Engineering
The Hong Kong Electronic Industries Association Limited
The Hong Kong Exporters' Association
The Hong Kong Information Technology Federation
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 Nano & Advanced Materials Institute Limited
Hong Kong Cyberport
The University of Hong Kong - Department of Electronic & Electrical Engineering

Remarks 備註:

- Free admission. Seats are granted on a first-come-first-served basis. 免費入場。座位有限,先到先得。

- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

Mr Wilson Chow, PwC Global Technology, Media and Telecommunications Industry Leader 羅兵咸永道全球 TMT 行業主管合夥人 周偉然先生

#### About the Speaker

Wilson heads PwC's global technology, media and entertainment and telecommunications (TMT) industry practice. He is also the TMT industry leader for the firm's Mainland China and Hong Kong practice. Wilson is based in PwC China's Shenzhen office.

Emerging technologies and digital deployment are redefining all industries and businesses. They also lead to rapid growth and developments of companies in the TMT industry. Wilson has been leading and supporting the PwC global network across all lines of service - Assurance, Taxation and Advisory - to provide one-stop professional solutions and services to companies in the TMT industry, as well as to clients looking to reinvent themselves through digital transformation.

Wilson has been working in the public accounting practice in Mainland China and Hong Kong for more than 28 years. He has extensive experience in



providing assurance and advisory services to companies in the TMT industry, ranging from start-ups to global tech giants, for capital market transactions, assurance engagements, systems and controls advisory, and deals.

He is a practicing member of the Hong Kong Institute of Certified Accountants, China Institute of Certified Public Accountants, and the Association of Chartered Certified Accountants. Wilson is also an adviser to the Internet Advertising Board of Hong Kong.

周偉然先生領導著普華永道全球科技、媒體、娛樂和電信(TMT)行業團隊,同時也是中國內地和香港 TMT 行業主管合夥人。周偉然先生的辦公地點位於普華永道中國深圳辦事處。

新興技術和數字部署正在重塑所有行業和企業,並帶來 TMT 行業公司的快速增長和發展。周偉然先生一直領導並支持 涵蓋所有服務領域(審計、稅務和諮詢)的普華永道全球網絡,為 TMT 行業的公司以及尋求通過數字化轉型重塑自身 的客戶提供一站式專業解決方案和服務。

周偉然先生在中國大陸和香港的公共會計業務領域有超過 28 年的工作經歷。他在為 TMT 行業公司提供審計和諮詢服務方面擁有豐富的經驗,客戶範圍涵蓋從初創企業到全球科技巨頭,業務包括資本市場交易、審計業務、系統和控制諮詢以及交易服務。

周偉然先生是中國註冊會計師協會,英國特許會計師公會及香港會計師公會的執業會員。此外,周偉然先生還是香港 互聯網廣告委員會顧問。

## About the Presentation

The next generation of wireless technology has arrived. To ensure a fair return for enormous investments in 5G, various industries, such as telecom operators must think historically about the monetisation opportunities.

According to recent industry research results, 5G networks carries 35% of the global internet traffic by end of 2024, which dominates up to 65% of the global population. This technology goes beyond connecting people, but fully empower the developments of Internet of Things, data analytics, AI and the Fourth Industrial Revolution (4IR). 5G is the glue that brings and stick all these together. Economists are therefore projecting that the economic value of 5G will be as high as US\$12 trillion by 2035.

Remarks 備註:

- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

<sup>-</sup> Free admission. Seats are granted on a first-come-first-served basis. 免費入場。座位有限,先到先得。

<sup>-</sup> The Organiser reserves the right to make any changes without prior notice. 主辦機構保留任何更改之權利而不作另行通告。

In the upcoming Symposium, PwC Global, Mainland China and Hong Kong TMT Leader, Wilson Chow, will share with you:

- 1. Latest 5G development
- 2. Key opportunities and challenges facing 5G

#### 5G 所帶來之機遇與挑戰

新一代無線技術 5G 已經到來,為確保從巨額 5G 投資中獲得合理收益,不同行業,如電訊運營商必須全面思考盈利機會。根據近期的行業研究報告,在 2024 年底前,65%之 全球人口將全面使用 5G,佔據了 35% 之全球網絡交通。這種技術除了聯繫人類,還加速物聯網,數據分析,人工智慧和 4IR 的發展。經濟學家推測 5G 的市場價值在 2035 年前將達 12 兆美元。

普華永道全球、中國內地及香港 TMT 行業主管合夥人周偉然將為大家分享:

1.5G 近期發展

2.5G 所帶來之機遇與挑戰

# Mr Peter Lemmens, Director of Imec Innovation Services, imec imec 創新服務處長 雷孟思先生

## About the Speaker

Peter has played a key role in establishing imec's first R&D center outside Europe and growing imec's business scope in Taiwan by contributing more than 20 years of experience in bringing consumer electronics products to the market, from early research concept to mass production.

Imec Innovation Services helps entrepreneurs and companies to realize their idea and bring it into a commercialization. The services range from system and end-product design, to prototyping, advanced imaging solutions, reliability and DfX modelling. Imec Taiwan licenses SOC IP and design system solutions for imaging, healthcare, IOT and conformal structures, mainly to clients in the fabless semiconductor industry, system integrators and SME's. Imec Taiwan leverages from the 35 years of



technology innovation by imec. Imec Innovation Services has R&D teams in Belgium and Taiwan.

Before joining imec, Peter has held several R&D management positions at Philips Electronics in Belgium, The Netherlands and Taiwan. He also served as a coordinator for FP7 European research projects, in the area of technology aware design and multi-core embedded systems. He holds a master of science in industrial engineering, with a major in micro-electronics, and a bachelor in business administration from the Katholic University of Louvain.

## **About the Presentation**

Imec pioneers compact, high throughput, and power efficient technology solutions for next-generation 5G and wireless IOT communication. Sensors are everywhere! Mobile platforms have enjoyed an exponential growth of embedded sensors systems in recent years, driven by a consumer desire for human-centric augmented reality and enhanced user experience. Recent technological advances support the strong emerging trend of bringing unobtrusive sensor solutions into a much broader range of applications, away from the traditional mobile platforms. A new class of wireless sensor networks enables diverse applications in industrial automation, healthcare and smart cities.

The recent rise of 5G pushes to the extreme the need for low-power wireless sensors that can meet critical environmental requirements and safety concerns. The design and development of innovative sensor systems has garnered lots of attention in the scientific community and the industry. Multiple technologies have now reached the point of maturity that enables innovative product development with a realistic time-to-market. In this talk a selection of concrete examples will be provided along with novel technologies that imec is working on.

Imec aims to be the world-leading R&D and innovation hub in nanoelectronics and digital technologies. As a trusted partner for companies, startups and academia we bring together brilliant minds from all over the world in

Remarks 備註:

- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

<sup>-</sup> Free admission. Seats are granted on a **first-come-first-served basis**. 免費入場。座位有限,**先到先得**。

<sup>-</sup> The Organiser reserves the right to make any changes without prior notice. 主辦機構保留任何更改之權利而不作另行通告。

a creative and stimulating environment. By leveraging our world-class infrastructure and local and global ecosystem of diverse partners across a multitude of industries, we are accelerating progress towards a connected, sustainable future. Technology has the power to improve lives. That is why we push the boundaries of technology forward

Mr K L Ho, SVP, Strategic Wireless Technology and Project Office, HKT Limited 香港電訊有限公司無線技術策略及項目管理 何啟亮先生

### About the Speaker

Mr Ho is responsible for the Strategic Planning and Development of Mobile Network as well as Strategic Project Management. Mr Ho participated in major projects in the past decade including launch of LTE, network sharing project, CSL acquisition and network integration, Digital Transformation, and, most recently engaged in the strategic planning and design of the 5G development

Mr Ho has over 30 years of experience in the telecom industry with over 25 years with mobile operators served in different positions ranging from engineering, product development and business development. Mr Ho graduated from the Hong Kong Polytechnic with B.Eng (Hons) in Electronic Engineering, subsequently earned a MSc. degree In Electronics Systems Design from City Polytechnic of Hong Kong and then a MBA degree from City University of Hong Kong.



## **About the Presentation**

5G is NOW! 5G has been designed to meet the very large growth in data and connectivity of today's modern society, the internet of things with billions of connected devices, and tomorrow's innovations. 5G will provide the speed, low latency and connectivity to enable a new generation of applications, services and business opportunities that have not been seen before.

People's life and the way how business conducts will undergo tremendous changes, creating not just threats but also opportunities for different industries in improving efficiencies and customer experience, benefitting entire economies and entire societies, ultimately enhancing the quality of life for everyone.

This presentation highlights the potential of 5G and its business applications using the hottest technology: IoT (Internet of Things), AI (Artificial Intelligence), AR (Augmented Reality) and Cloud. It gives the audience an idea of how 5G improving efficiencies and customer experience in the vertical industries with practical use cases.

Remarks 備註:

- Free admission. Seats are granted on a **first-come-first-served basis**. 免費入場。座位有限,**先到先得**。
- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

## Mr Michael Chang, CTO, Customer Operations, Greater China, Nokia Networks 諾基亞通信大中華區客戶運營首席技術官 常疆先生

## About the Speaker

Before the CTO role, Michael was general manager of Nokia Industry Environment APAC division, responsible for standardization and technical regulation in APAC region. He has over 17 years of managerial experience in multinational companies on ICT research & innovation, standardization and technology strategy.

Michael started his professional career with Lucent Bell-Labs as a senior researcher, on innovation of next generation telecom network. After joining Nokia, he worked in technology vision & strategy, standardization and technical policies. His current focus is on 5G/IoT, cloud, open source, digital tech policies including cybersecurity and data protection.

Michael served as Vice President and Board Member of European Chamber of Commerce in China (EUCCC) (2017-2019), where he played a leading role in China-EU high level dialogue on High-Tech & Digital policies and cross-industry exchanges. Michael was a member of the "EU-China Expert Group on Digital Economy & Cybersecurity" formed by China & EU government as top dialogue platform on digital transformation.



## **About the Presentation**

In 2019, 5G roll out is happening in several lead markets and a global momentum is actively advancing. As the critical information infrastructure for a digital era, 5G is tasked to unleash the full potential of business but the question is how. This presentation will start with a snapshot of global 5G market and network status. A closer look of how 5G should technically foster transformation from CSP to DSP will be illustrated with an end to end architectural perspective. Case study of business impact by 5G use cases and a proposed stepped-approach to deploy 5G will be introduced. Innovative solutions to address paramount 5G challenges e.g. energy savings and an outlook of 5G technology evolution will be shared as a forward-looking insight towards the future.

# Mr Alex Cheng, Principal Engineer, Network Planning & Implementation, China Mobile Hong Kong Co. Ltd. 中國移動首席工程師 鄭啟良先生

### About the Speaker

Mr Cheng has been responsible for the company's mobile network planning and operations. He now mainly focuses on 5G technology development, as well as CMCC 5G Innovation Center Hong Kong Open Lab which was opened in March 2018.

Mr Cheng is the company's representative in the Radio Spectrum and Technical Standards Advisory Committee and Telecommunications Regulatory Affairs Advisory Committee of The Office of the Communications Authority in Hong Kong.

Mr Cheng is a telecommunications veteran with over 30 years of local and overseas experience in telecommunications industry, and possesses in-depth knowledge in planning, design and operation of mobile and fixed communication network infrastructure and services. Prior to joining China Mobile Hong Kong Co. Ltd, he worked for Hong Kong Telephone Co. Ltd. and Vodafone Australia Pty Ltd where he was responsible for the planning & design of Vodafone mobile network in Australia.



Remarks 備註:

<sup>-</sup> Free admission. Seats are granted on a **first-come-first-served basis**. 免費入場。座位有限,**先到先得**。

<sup>-</sup> Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

<sup>-</sup> The Organiser reserves the right to make any changes without prior notice. 主辦機構保留任何更改之權利而不作另行通告。

## **About the Presentation**

4G has already changed our daily life. Over 80% of the 1.4 billion population in China are now active mobile internet users, and average time spent by an individual on mobile internet has reached 6 hours per day. 5G will be the next wave of evolution in mobile communications, enhancing the capacity of communications across daily lives and the economy. It is predicted that 5G industry will drive direct and indirect economic output of 6.3 trillion and 10.6 trillion CNY respectively in China by year 2030.

5G will change the society, and enable a fully mobile and connected society affecting everyone in a smarter world. 5G will create an environment for innovative application development. In the upcoming event, I will give some update of the latest 5G development, particularly in Hong Kong, and share idea about potential 5G+ solutions for different industries and the challenges facing 5G development.

Mr Andrew Ko, Expert Application Consultant, Keysight Technologies Hong Kong Limited 是德科技香港有限公司專家技術顧問 高育財先生

# About the Speaker

Mr Andrew KO has been working as the Expert Application Consultant in KeySight/ Agilent Technologies since 1999. He has been supporting the Electronic Industries and R&D Education Institutes in Hong Kong and Southern China with strong technical expertise in wireless signal surveillances and communications, 5G/ IoT, **RF/MW/MMW** measurements, signal integrity and assisting customers to achieve compliance requirements. He has conducted workshops of basic and advanced measurement techniques for IEEE AP MTT Chapters and universities. He has been actively supporting Nano-technology material R&D, university patent assessments and serving as the HK CityU Foundation member and the Advisory Committee member of HK PolyU **EIE** Department.

Andrew joined HP/ Agilent/ KeySight in 1989 as the Regional Sales Support Engineer with championship in RF/MW design and component measurements and then the Market Development Manager for promotion and channel programs in industries such as Wireless Manufacturing,



Electronic Manufacturing, Aerospace/Defense, and General-Purpose Instruments. Prior to joining HP/ Agilent/ KeySight, he was Application Engineer with B&K for acoustics product support.

Andrew received his BEng (Elec) and MEngSc (Elec) degree from the University of Melbourne, Victoria, Australia, in 1987 and 1989 specializing in MMW CAD and experimental verification. He also received the MBA Degree from The Hong Kong University of Science and Technology with concentration in Information Technology Management in 1999.

高育財先生,自 1999 年到現今,在 KeySight/ Agilent 任職專家應用顧問,主力支持南中國及香港的電子生產行業,研發,大學等教育機構.他致力無線信號監視和通信,5G / IoT, 射頻/ 微波/毫微波器件及系統測試,他善於分析信號完整性,幫助用戶完成全兼容測試項目要求.他多次在 IEEE 及大學主講教導基礎及先進測試技術課程.他支援納米科技材料研發及審批大學專利申請,他曾為香港理工大學電子資訊工程學系工業諮詢委員會成員.

高先生自 1989 年加入 HP/ Agilent/ KeySight, 曾任亞太銷售支援工程師, 負責射頻/微波設計及器件測試, 後升任 為市場推廣經理, 主力擴張測試產品銷售及渠道管理, 特別針對無線產品生產,電子產品生產, 航天國防工業, 及通 用測試儀器市場. 在未加入 HP/ Agilent/ KeySight 之前. 他曾任 B&K 的應用工程師, 主要支援音響測試儀器.

高先生在澳洲維多利亞省墨耳本大學的電子電機工程系 1987 年 學士學位畢業, 再進深研究毫微波電腦設計軟件 及測試驗證 1989 年 取得碩士學位. 在 1999 年, 他更取得香港料技大學的工商管理碩士, 專門針對資訊科技管理.

Remarks 備註:

<sup>-</sup> Free admission. Seats are granted on a first-come-first-served basis. 免費入場。座位有限,先到先得。

<sup>-</sup> Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

<sup>-</sup> The Organiser reserves the right to make any changes without prior notice. 主辦機構保留任何更改之權利而不作另行通告。

## About the Presentation

Vehicle-to-everything communication refers to a car's communication system, in which information from sensors, and other sources, travels through high-bandwidth, low-latency, high-reliability links, paving the way to fully autonomous driving. C-V2X communicates to a cellular network for cloud-based services like navigation and infotainment and uses a direct link to connect vehicles to everything, including each other (V2V), to pedestrians (V2P), to infrastructure (V2I), and to the network (V2N). One of the biggest test challenges for C-V2X is keeping up with the latest standard which requires a test solution that is always up-to-date with the latest evolution of the C-V2X requirements, including future releases that involve 5G new radio (5G NR). In this paper, an overview of the C-V2X technology will be provided with the discussion of the testing solution that enables designs complying to the latest evolution of the C-V2X specification requirements.

車對一切通信是指汽車的通信系統,其中來自傳感器和其他來源的信息通過高帶寬,低延遲,高可靠性鏈路傳輸,為全自動駕駛鋪平了道路。 C-V2X 通過蜂窩網絡與基於雲的服務(如導航和信息娛樂)進行通信,並使用直接鏈接將車輛連接到所有設備,包括彼此(V2V),行人(V2P),基礎設施(V2I)以及網絡(V2N)。 C-V2X 最大的測試挑戰之一是跟上最新標準,該標準要求測試解決方案始終與 C-V2X 要求的最新發展保持同步,包括涉及 5G 新無線電的未來版本(5G NR)。在本文中,將提供對 C-V2X 技術的概述,以及對測試解決方案的討論,該解決方案使設計符合 C-V2X 規範要求的最新發展。

# Dr Justin Chuang, Vice President Communications Technology Division, ASTRI 香港應用科技研究院副總裁(通訊技術) 莊哲義博士

## About the Speaker

Dr Justin Chuang joined ASTRI in December 2011 with nearly three decades of experience 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 was elected an IEEE Fellow in 1997. Dr Chuang has held various positions in several multinational organisations including Broadcom Corporation, AT&T, Bellcore, and General Electric. Furthermore, he has also served as Professor in the Department of Electrical and Electronic Engineering of the Hong Kong University of Science and Technology (HKUST) from 1993 to 1996. Dr Chuang is experienced in taking research through engineering to commercialisation for wireless and cellular systems, from chipsets to platform solutions. Before joining ASTRI, Dr Chuang was a Senior Director at Broadcom



where his team was responsible for providing modem software and platform support for Broadcom's mobile communications chipsets from its inception. At ASTRI, Dr Chuang and his team are leveraging the collaborative efforts among government, industry, university and research organisations to drive the advancement and commercialisation of enabling technologies for 4G, 5G and beyond.

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。 1997 年,他獲國際電機電子工程師學會(IEEE)頒授院士榮銜。莊博士曾於多家跨國企業擔任不同職務,包括半導體解決方案公司 Broadcom Corporation (博通)、電訊服務公司 AT&T、Bellcore 以及通用電氣公司。此外,他亦於 1993 至 96 年期間在香港科技大學擔任電子及電腦工程學系的教授。莊博士對於將無線及蜂窩系統的科研專案商品化擁有豐富經驗,當中包括芯片組件以至平台解決方案。在加入應科院之前,莊博士於博通擔任高級總監,在此期間,他的團隊一直負責為博通的流動通訊芯片組件提供資料機軟件及支持平台解決方案。目前在應科院,莊博士正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。

## **About the Presentation**

Economists estimate the global economic impact of 5G will reach USD 12 trillion by 2035, as 5G moves mobile technology from connecting people to public services, businesses, education, transportation and information. It's literally connecting people to everything. With 5G, a smarter Hong Kong will use information and communication

#### Remarks 備註:

- Free admission. Seats are granted on a **first-come-first-served basis**. 免費入場。座位有限,**先到先得**。
- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。
- The Organiser reserves the right to make any changes without prior notice. 主辦機構保留任何更改之權利而不作另行通告。

technologies to increase operational efficiency, share information with the public, make businesses more competitive, and improve both the quality of government services and citizen welfare. 5G will help with smart traffic management, smart environmental monitoring, smart healthcare, smart banking, and even smart government services. We will be able to conserve water and energy. Smart parking and smart pedestrian navigation will save time and money. Smart public transit will help ensure passenger demand is met throughout the day. Smart sensors will power early warnings systems for flood, landslides, fire hazards, or typhoons. ASTRI is working alongside leading telecom operators, equipment manufacturers, as well as public utility / transport operators to develop numerous vertical applications of 5G technology. 5G will lead us to a smart future. A smart Hong Kong. A smart world. And it's not too far way. In fact, many of these are being tried around the world, including in Hong Kong. The reality is, 5G will impact almost every aspect of our lives. The city we call home, the place we all love so dearly, Hong Kong has all the right ingredients to be a model Smart City for the entire world.

據經濟學家估計,5G流動通訊技術對全球經濟的影響將於2035年達到12兆美元,影響範圍由普羅大眾的日常通訊, 以至應用於公共服務、商貿、教育、交通和資訊流通,真正將人與身邊的一切聯繫起來。

有了 5G 技術,香港的智慧城市發展將更進一步,善用資訊與通訊科技,提高營運效率、增加公共資訊透明度、提升企業競爭力及提高政府服務和公共福利的質素。5G 技術亦將有助於交通管理、環境監測、醫療、銀行,甚至是各樣的智能政府服務,如節能和節水。這些智能系統將直接為日常生活帶來便利,智能停車和智能行人導航能夠節省時間和金錢; 智能公共交通系統能夠準確預計每天大眾運輸的載客量需求;智能感應器能夠在洪水泛濫、山泥傾瀉、火災或颱風發生 前作出預告和警報。應科院一直與各行業的龍頭企業和營運者建立長遠合作,涉足通訊科技業、硬件設備製造業、公用 事業及運輸業,發展一條龍的 5G 技術應用。

可以預見的是,5G技術將引領我們走向智慧未來,打造智慧香港,立足智慧世界。放眼未來,這些都並非遙不可及。縱 觀當下,很多5G技術實測項目已經在香港及世界各地積極進行。事實上,5G技術將滲透我們日常生活的每個角落。香 港是我們的家園,是眾人所喜愛的地方,更是一個擁有無限潛力發展成國際級模範智慧城市的地方。

## Mr Tong Liu, GM, Al industries, NVIDIA China 英偉達公司高性能計算與新興業務中國區總經理 劉通先生

### About the Speaker

Mr Tong Liu, GM of AI industries at NVIDIA China. He is responsible for overall sales and solution development of Telecom, Finance, Energy, Auto, and Healthcare markets in China. Before joining NVIDIA in 2017, he worked at Mellanox, the world-leading high performance interconnect company. During 9 years at Mellanox, he worked as Technical Manager, Sr. Technical Manager, Market Development Director, and Sr. Director of APJ & China Market development. Before Mellanox, Mr. Liu was working at Dell and HP headquarter R&D departments as HPC system engineer, consultant, and senior architect. Mr. Liu has published over 30 technical articles on international conferences.

## **About the Presentation**

As we hurtle toward the era of 5G, where cars, MRI scanners, and even washing machines will be connected, telecommunications companies are challenged to serve the vast amounts of content and services it will generate. To manage data loads, process complex network functions, provide new services, and drive revenue growth, they need to build a new kind of network.

Remarks 備註:

- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。

<sup>-</sup> Free admission. Seats are granted on a first-come-first-served basis. 免費入場。座位有限,先到先得。

Mr Timothy Tam, Head of Public Policy and Government Affairs (Hong Kong), Google Google 公共政策及政府事務總監(香港) 譚雨川先生

## About the Speaker

Timothy Tam is a policy advocacy and stakeholder engagement professional with a decade of managerial experience in the public, private and non-profit sectors. As the Head of Public Policy and Government Affairs of Google Hong Kong, Timothy coordinates Google's public policy efforts in Hong Kong and engages various stakeholders in building Hong Kong into a smarter digital city.

Timothy was an Administrative Officer in the Hong Kong government and was responsible for formulation of policies relating to healthcare service reform and other inter-departmental initiatives. He later joined a couple of business associations in Hong Kong, responsible for policy advocacy and stakeholder engagement. Prior to joining Google, Timothy spearheaded the implementation of a multi-year advocacy campaign as a project manager at the Hong Kong Jockey Club Charities Trust.



## **About the Presentation**

Hong Kong has long been considered one of Asia's foremost cities and a nexus for the rest of the world. To ensure the city's competitiveness, sustain a strong economy, and ultimately improve people's quality of life, Hong Kong has been undergoing a digital transformation. By applying innovation and technology, this ongoing evolution into a Smarter Digital City will shape Hong Kong's healthy and prosperous future for generations to come.

In 2017, Google Hong Kong committed to a three-year longitudinal study to better understand the adoption of digital technologies by consumers, small businesses and corporations. In its third year, the Smarter Digital City 3.0 whitepaper published in September 2019 unearths and explores Hong Kong's collective Smarter Digital City journey since 2017.

By examining the digital progress, barriers, and opportunity areas through the perspectives of key stakeholders across vital sectors to Hong Kong's economy - Travel, Retail, Finance, Living, and People - the Smarter Digital City 3.0 research aims to offer strategic and tactical recommendations that help illuminate a path forward.

(The Smarter Digital City 3.0 whitepaper can be accessed at https://services.google.com/fh/files/misc/google\_smarter\_digital\_city\_3\_whitepaper.pdf.)

Remarks 備註:

- Free admission. Seats are granted on a **first-come-first-served basis**. 免費入場。座位有限,**先到先得**。

- Trade only and persons under 18 will not be admitted. 只接待 18 歲或以上業內人士進場。