

## President's Foreword



As you are aware, I was involved in starting NTU and then managed it for 21 years. As expected, the experience of running a large university is very different to a smaller organisation like The Academy of Engineering. But there are similarities. Both institutions play a key role in societal development at the intersection of academia and society. Both have the objective of promoting and improving our world. The activities of both institutions have solid scientific foundations.

The mission of the Academy is to promote engineering and the advancement of business and industry for the benefit of the society in Singapore. Fellows are drawn from both the academia as well as business leaders. Through their views and inputs, the Academy is able to form an overall opinion. They are forwarded to relevant authorities where applicable for their consideration.

We are in the midst of a rapidly changing world with the prevalence of disruptive technology. The main players are AI (artificial intelligence) and intelligent machines. Due to the massive power of computers, machines are becoming more intelligent than human beings. To make good use of the abilities of the powerful machines, for the benefit of the society, we need good engineers – engineers who can re-skill and up-skill constantly, and who can make useful applications out of the machines. I foresee the Academy will play this critical role in the future by encouraging more bright youngsters to take up engineering.

**Professor Cham Tao Soon**

## New Fellows

The Academy's fellowship currently stands at 104 strong with the election of 11 new fellows in 2018.

We are pleased to welcome the following new Fellows to the Academy.



**Mr Vincent Chong**  
President & CEO  
Singapore Technologies Engineering Ltd  
(ST Engineering)

Mr Vincent Chong is the President & CEO of ST Engineering, a global technology, defence and engineering group specialising in the aerospace, electronics, land systems and marine sectors. He joined the Group in 2014 as President of Strategic Plans & Business Development of its Aerospace Arm, and was the Group's Deputy CEO (Corporate Development) before assuming his current role in October 2016. Under Vincent's leadership, ST Engineering continues strengthening its core businesses while pursuing new growth, with global expansion in defence and smart city business encompassing mobility, security, satcoms and robotics.

Vincent has 20 years of global business experience from ExxonMobil with half of this time being based in Hong Kong, Japan, UK and the US. He held a wide span of senior positions in refinery process engineering, industrial and retail operations, product marketing and strategic planning.

Vincent is a board member of JTC Corporation, and a member of Ministry of Trade and Industry's International Advisory Panel for Advanced Manufacturing and Engineering. He also sat on the Government-convened Committee on the Future Economy.

Vincent graduated in 1994 with First Class Honours in Mechanical Engineering from the National University of Singapore. He attended executive leadership programmes at Thunderbird School of Global Management and Columbia Business School.



**Mr Gan Boon Jin**  
Chief Technology Officer  
SMRT Corporation Ltd (SMRT)

Mr Gan Boon Jin has been appointed as Chief Technology Officer of SMRT since October 2018. His duties include identifying innovation projects and technology investments across the SMRT Group. He will also oversee technology development projects and acquire new capabilities to raise and sustain the high levels of rail reliability and safety as well as the digitisation of the rail operation and maintenance processes.

Mr Gan was seconded to SMRT from ST Engineering Land Systems (STELS), previously known as ST Kinetics in February 2018 to oversee the life-cycle management for the High Speed Rail project. He joined ST Kinetics in 2003 as the deputy director of its engineering and development division. His pursuit of new product development and business opportunities resulted in strong growth trajectory for the defence business revenue and profitability for ST Kinetics. His last appointment was the Chief Operating Officer and President, Defence Business before he stepped down from full-time employment in September 2016. He was then the Chief Engineering Officer of STELS on a part-time basis, where he assisted STELS in resolving technical issues in various development projects and building new engineering capabilities to support the evolving business needs of STELS. On 1 July 2018, he was appointed as an Adviser to STELS.

He holds a bachelor's degree with 2nd Class Honours in Mechanical Engineering from the National University of Singapore and a MSc degree in Military Vehicle Technology from Cranfield University. During his course of study at Cranfield University, he received the Royal Ordnance Trophy for being the best MSc student. He was also awarded the Public Administration Medal (Bronze) in 1999 during his career with MINDEF and NSman of the Year 2001 when he was serving his NS duties.



**Mr Gan Seow Kee**  
Chairman and Managing Director  
ExxonMobil Asia Pacific Pte Ltd

Mr Gan Seow Kee is the Chairman and Managing Director of ExxonMobil Asia Pacific Pte Ltd. In his more than 30-year career with ExxonMobil, he has held various positions in manufacturing, business, planning, and finance in Singapore and the United States (US).

He is Vice Chairman of the Singapore Business Federation and serves on the board of the Singapore Economic Development Board. He is also a member of the Singapore Ministry of Trade and Industry's International Advisory Panel on Advanced Manufacturing and Engineering, as well as the National University of Singapore's Engineering Faculty Advisory Board.

Mr Gan obtained his bachelor's degree in engineering with honours from National University of Singapore and is a Fellow with the United Kingdom Institute of Chartered Management Accountants.



**Professor Ho Teck Hua**  
Senior Deputy President and Provost,  
Tan Chin Tuan Centennial Professor  
National University of Singapore (NUS)

Prof Ho Teck Hua is the Senior Deputy President and Provost, and Tan Chin Tuan Centennial Professor at NUS. He is a prominent behavioural scientist, with a PhD and a master's degree in decision sciences from the Wharton School. He also has a bachelor's degree in electrical engineering and a master's degree in computer and information sciences from NUS.

From 2002 to 2015, Prof Ho was the William Halford Jr Family Professor of Marketing at the University of California, Berkeley's Haas School of Business. In 1999, he earned tenure in the marketing department at the Wharton School of the University of Pennsylvania. Before that, he was assistant professor of operations and technology management at the UCLA Anderson School of Management.

In 2011, he took a part-time appointment at NUS as Vice President (Research Strategy). In 2015, he became Deputy President of Research and Technology. In Singapore, he is on the boards of the National University Health System and the National Environment Agency, and is a fellow at the Civil Service College. He is also Executive Chairman of AI Singapore and Chairman of the Singapore Data Science Consortium.

In 2015, Prof Ho received the Williamson Award, the Haas School's highest faculty award, named in honour of Oliver Williamson, recipient of the 2009 Nobel Memorial Prize in Economic Sciences.



**Professor Hong Minghui**  
Director, Optical Science and Engineering Centre  
(OSEC) and Professor, Department of Electrical and  
Computer Engineering  
National University of Singapore (NUS)

Prof Hong Minghui is currently a full professor at the Department of Electrical and Computer Engineering and the Director of Optical Science and Engineering Centre at NUS. He is also the Chairman of an NUS spin-off company, Phaos Technology Pte Ltd.

Prof Hong specialises in optical engineering. He has co-authored 10 book chapters, 24 patents granted, and over 400 scientific papers in *Nature*, *Chemical Reviews*, *Nature Nanotechnology*, *Advanced Materials*, *Nano Letters*, *Light: Science and Applications*, *ACS Nano*, *Science Advances*, *Nature Communications*, and *Laser*

& *Photonics Reviews* and has been invited to present over 60 plenary/ keynote/ talks in international conferences.

He is the Chair of International Workshop of Plasmonics and Applications in Nanotechnologies (2006), Chair of Conference on Laser Ablation (2009) and Chair of Asia-Pacific Near-field Optics Conference (2013 and 2019). Prof Hong is invited to serve as an Editor of *Light: Science and Applications* (Nature Publishing Group), Associate Editor of *Science China G*, Editor of *Laser Micro/ Nanoengineering*, and Executive Editor-in-Chief of *Opto-Electronic Advances*.

He is a Fellow of Optical Society of America (OSA), Fellow of International Society for Optics and Photonics (SPIE), and Founding Fellow and Vice President of International Academy of Photonics and Laser Engineering (IAPLE) as well as Fellow and Council Member of The Institution of Engineers, Singapore (IES).



#### **Dr Richard Kwok**

Assistant Chief Executive Officer, Trains, and Chief, Joint Readiness Inspection SMRT Corporation Ltd (SMRT)

Dr Richard Kwok has been appointed as Assistant Chief Executive Officer, Trains, and Chief, Joint Readiness Inspection at SMRT since December 2017. Prior to joining

SMRT, he was the Executive Vice President and Chief Technology Officer, Singapore Technologies Kinetics Ltd (ST Kinetics).

Dr Kwok has more than 46 years of diverse working experience and had held many concurrent appointments including Chief Executive Officer with Advanced Technology Research Centre (ATREC), a joint venture between Defence Science Organisation and Singapore Technologies and Chairman of 7 research laboratories at Institute of Technical Education (ITE), Polytechnics and Institutes of Higher Learning (IHLs).

He was appointed as Adjunct Professor with Southern Cross University from 2000 to 2007 and also served as Adjunct Associate Professors at the Nanyang Technological University, Singapore (NTU Singapore) and the National University of Singapore (NUS) in 1999 and 2005 respectively. He has also been appointed as an Adjunct Professor at the School of Science & Technology at SIM University (UniSIM) since March 2011. He was also the Chairman of Intellectual Property Right Committee in Singapore Technologies Engineering from 2000 to 2017.

He received a Master of Science degree in Automotive Engineering in 1987 from Cranfield University. During his course of study at Cranfield University, he was awarded the Rootes Prize. He also obtained a PhD in Technology Management in 2000 from University of Southern Australia.

He was awarded the Defence Technology Prize (Individual) and the Defence Technology Prize (Team) by the Ministry of Defence Singapore in 2002 and 1999 respectively, and the Cheng Fook Choon Gold Award in Engineering Process Innovation and Improvement by Singapore Technologies in 1997. In December 2006, he also won the Lifelong Learner Award.



#### **Professor Louis Phee**

Dean, College of Engineering  
Nanyang Technological University, Singapore (NTU Singapore)

Prof Louis Phee is the Dean of College of Engineering at NTU Singapore. Prior to his deanship, he has served 3 years as Chair of the School of Mechanical and Aerospace

Engineering. He graduated from NTU with the B.Eng (Hons) and M.Eng degrees in 1996 and 1999 respectively. He obtained his PhD from Scuola Superiore Sant'Anna, Pisa, Italy in 2002 on a European Union scholarship.

Prof Phee's research interests include Medical Robotics and Mechatronics in Medicine. He is currently a recipient of the prestigious National Research Foundation (NRF) Investigator Award. He had previously served as the Programme Manager of A\*STAR's inaugural MedTech Programme. He was the founding CEO of EndoMaster Pte Ltd, a company he co-founded to commercialise a surgical robotic system he developed.

Prof Phee was awarded the Young Scientist Award in 2006, the Outstanding Young Persons of Singapore Award in 2007, the Nanyang Outstanding Young

Alumni Award in 2011, the President's Technology Award in 2012, the Nanyang Innovation and Entrepreneurship Award in 2013 and the Nanyang Alumni Achievement Award in 2017.



#### **Professor Subra Suresh**

President and Distinguished University Professor  
Nanyang Technological University, Singapore (NTU Singapore)

Prof Subra Suresh is an eminent American scientist, engineer and entrepreneur with decades of distinguished and impactful leadership in academia, industry and government. He began his tenure as President of NTU Singapore from 1 January 2018, and is the University's inaugural Distinguished University Professor.

Nominated by the President of the United States, and unanimously confirmed by the United States Senate, Prof Suresh served as Director of the National Science Foundation, overseeing a US\$7 billion annual budget that supports fundamental research and innovation in science and engineering. His other recent leadership roles include being President of Carnegie Mellon University and Dean of the School of Engineering at the Massachusetts Institute of Technology, where he is the Vannevar Bush Professor of Engineering Emeritus.

Prof Suresh has been elected to all three US national academies of Sciences, Engineering and Medicine. His research in materials science and engineering, mechanics and biomedicine has helped to shape disciplines and technologies at the intersections of engineering, science and medicine. He has also been elected to the Science and/or Engineering academies in China, France, Germany, India, Singapore, Spain and Sweden.

Prof Suresh has won numerous honours for his research and achievements and consults widely and globally for multinational corporations, technology start-ups, governments, non-profits and research organisations. He is an Independent Director of the Boards of HP Inc. in Palo Alto, California, and the Singapore Stock Exchange.



#### **Professor Lawrence Wong Wai Choong**

Deputy Director, Smart Systems Institute  
Professor, Department of Electrical and Computer Engineering (ECE)  
National University of Singapore (NUS)

Prof Lawrence Wong has served in various leadership positions in NUS at the department, faculty and university levels, such as Director, NUS Centre for Instructional Technology from 1998 to 2000; Director, NUS Computer Centre from 2000 to 2002; Head, Department of Electrical and Computer Engineering from 2008 to 2009 and Deputy Director, Smart Systems Institute (previously Interactive and Digital Media Institute) since 2008.

He was Executive Director, Institute for Infocomm Research (I2R), Agency for Science, Technology and Research (A\*STAR) from 2002 to 2006. He has been an academic and researcher for more than 30 years working in areas related to wireless networks, localisation and robust multimedia transmission.

Prof Wong is a Fellow of The Institution of Engineers, Singapore (IES).



#### **Dr Yeoh Lean Weng**

President  
The Institution of Engineers, Singapore (IES) and  
Director, Urban Solutions and Sustainability  
National Research Foundation (NRF)

Dr Yeoh Lean Weng is the President of IES, the Director of Urban Solutions and Sustainability, NRF and an adjunct professor of National University of Singapore (NUS).

During his time at IES, Dr Yeoh served as Deputy Chairman of IES Chartered Engineer Board (Systems Engineering), founding Chairman of the IES Certified Systems Engineering Professional, Executive Committee Member of the Asia

Pacific Council on Systems Engineering, President of the International Council on Systems Engineering (INCOSE) Singapore Chapter from 2009 to 2011 and Vice President of IES from 2008 to 2011 and 2014 to 2017.

Presently at the NRF, Dr Yeoh's responsibilities include developing R&D strategy and management of Singapore's national R&D programmes in urban solutions covering energy, water, land and liveability sectors to meet national needs. Under his leadership, he develops and strengthens Singapore's R&D capabilities and fosters innovation to meet Singapore's long-term energy, water and environmental challenges.

He is currently a member of the Solar Energy Research Institute of Singapore Supervisory Board, NTU Eco-campus Management Board, Energy Research Institute @ NTU Management Board, Environment Technology Research Programme Technology Board, TUM CREATE Consultative Committee and Management Board, NTU-Surbana Jurong Corporate Lab Governing Board, PUB Water Technology Advisory Panel, and the Energy Studies Institute.

Prior to his current role at the NRF, Dr Yeoh has held various management positions in the Defence Technology Office, Defence Science and Technology Agency, Temasek Defence Systems Institute, Command, Control and Communications Systems Organisation, and Defence Materiel Organisation.

Dr Yeoh received his Bachelor (with Honours) and MSc degrees from the NUS in 1983 and 1987 respectively. He further obtained two Masters (with distinction) in 1990 and a PhD degree in Electrical Engineering in 1997 from the Naval Postgraduate School (NPS). He attended the Program for Management Development at Harvard University in 2003.

A recipient of the Singapore Public Administration Medal in 2001 (Bronze) and 2008 (Silver), Dr Yeoh was also conferred the Defence Technology Prize in 1992, 2004 and 2007, the latter as an individual award for C4I development, large scale systems engineering and technology leadership. In addition, he has the distinction of being the first Fellow of INCOSE from Singapore and has co-authored numerous professional publications.



**Er. You Fook Hin**

Managing Director  
Mott MacDonald Singapore Pte Ltd

Er. You Fook Hin is the Managing Director of Mott MacDonald Singapore Pte Ltd. He is also the Territory Manager for Singapore, Indonesia and Malaysia. Er. You is a Shareholders' Committee Member of Mott MacDonald. He oversees more than 500 staff and the financial performance of all projects undertaken by the Group's offices in Singapore, Indonesia and Malaysia.

He is a registered Professional Engineer in Singapore, Fellow of the Institution of Civil Engineers UK, Chartered Engineer and Senior Member of The Institution of Engineers, Singapore (IES).

Er. You was profiled in the 2013 The Institution of Engineers, Singapore's 2nd Edition of *Who's Who In Engineering*. He won the Building and Construction Authority's Design and Engineering Safety Excellence Award in 2009 and 2016. Er. You was awarded the Minister of Transport Distinguished Award in 2015 in recognition for his contribution in the development of Singapore's First Underground Bicycle Park.

## ► Awards & Honours

Our heartiest congratulations to the following Fellows who had been bestowed with various prestigious honours and awards by the respective professional institutions and organisations.

### Professor Cham Tao Soon

- **Distinguished Professional Engineer Award 2018** by the Professional Engineers Board Singapore for outstanding achievements in engineering and dedicated service to the profession and community of Singapore.

### Professor Chung Tai-Shung Neal

- **Highly Cited Researcher 2018** by Clarivate Analytics for ranking in the top 1% by citations for field and publication year in Clarivate's Web of Science database.

### Professor Er Meng Hwa

- **IEEE Fellow** awarded by the Institute of Electrical and Electronics Engineers (IEEE), USA for his contributions to electronic engineering education.

### Dr Richard Kwok

- **AFE0 Honorary Fellow** conferred by the ASEAN Federation of Engineering Organisation (AFE0) in recognition of his outstanding services, greatness of spirit, integrity and devotion to the engineering profession to IES, Singapore and ASEAN community.

### Professor Lim Chwee Teck

- **Highly Cited Researcher 2018** by Clarivate Analytics for ranking in the top 1% by citations for field and publication year in Clarivate's Web of Science database.

### Mr Tan Gee Paw

- **Distinguished Professional Engineer Award 2018** by the Professional Engineers Board Singapore for outstanding achievements in engineering and dedicated service to the profession and community of Singapore.





### Eighth Annual General Meeting

The Academy of Engineering, Singapore held its eighth Annual General Meeting (AGM) in September 2018, at The Institution of Engineers, Singapore.

During the AGM, Professor Louis Phee presented the Secretary's report to the meeting for comments.

Academy President Cham Tao Soon welcomed the new Fellows who joined the Academy during the past year and gave an update on the progress of the projects initiated by the Academy. President Cham shared that the paper by Professor Chua Kee Chaing and his expert group on "Singapore as a Connected City" was submitted to the Centre for Liveable Cities for endorsement and reviewed by the Urban Redevelopment Authority (URA) with useful feedback received on the recommendations outlined in the paper. He commented that engineers should understand the benefits and impact of disruptive technologies to keep abreast of the latest technological changes and remain relevant to society. He also encouraged all Fellows to take time out to contribute to the Academy's projects and activities.

President Cham invited the meeting for comments and suggestions on the projects presented in the Secretary's report, to which the Fellows gave their endorsement without any amendment.

Professor Andrew Nee presented the Treasurer's report, which was also endorsed by Fellows without any amendment. President Cham informed that the Academy's financial position was healthy and he will write to the Fellows for donations to the Academy after the Academy's IPC status is renewed. President Cham also thanked donors for their contributions and cited Fellows Mr Seah Moon Ming and Professor Seah Hock Soon for their recent donations to the Academy.

President Cham updated that the Academy will be inviting local industry leaders to join as Fellows to bring about greater diversity of views and expertise to the Academy, and requested all Fellows for nominations of local industry leaders as Fellows for consideration and approval. President Cham also highlighted the importance of succession planning and introducing new blood to the Committee

and requested for nominations of young Fellows to be elected as Committee members.

President Cham requested the meeting for suggestions and proposals that could help to publicise the Academy. Professor Brian Lee suggested that the Academy should collaborate with the Academy of Medicine on biomedical products. In response, President Cham opined that the Academy should collaborate with The Institution of Engineers, Singapore (IES) on projects as the Academy has a number of Fellows who are also IES Fellows. Professor Chou Siaw Kiang agreed that closer relationship should be established with IES and proposed that the Academy work with IES on joint projects or events. Er. Chong Kee Sen suggested that IES could help to publicise the Academy during IES talks and events while Professor Yoon Soon Fatt suggested that a distinguished professor lecture series could be co-sponsored by the Academy and IES.

President also shared that the Academy had previously submitted a joint proposal with the Singapore National Academy of Science (SNAS) to the National Research Foundation (NRF) for funding to support admin and research manpower for both academies but NRF is facing difficulties in getting approval to support the request.

In closing, the President expressed his appreciation and thanks to the Executive Committee Members and the project groups who have dedicated precious time and hard work in pursuing the Academy's mission and objectives for the past year and thanked IES and Fellows for their valuable and generous support towards the Academy's activities.



## Making a Donation

The Academy of Engineering, Singapore (SAEng) is a not-for-profit entity registered in Singapore, funded by contributions from individuals and private organisations. Your donations will enable the Academy to develop and sustain projects to attract aspiring engineers, encourage innovation, and provide support to advance and promote excellence in engineering, and also improve the public awareness and understanding of engineering in Singapore.

To make a contribution to the Academy, please contact [saeng@ntu.edu.sg](mailto:saeng@ntu.edu.sg).

## Our Donors

The Academy has received a total of S\$121,570 from organisations and individual donors thus far. We would like to express our sincere gratitude to all generous individuals and organisations that have supported the Academy over the past seven years. Here is our 2011-2018 Honour Roll of Donors:

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