HKIE THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會

Veneree Club 睿賢學社

2026 Engineering Exposition -

Engineering Excellence

Saturday 14 March 2026
8:45 am - 12:30 pm

at HKIE Headquarters,
9/F, Island Beverley, Causeway Bay
Hong Kong

Contents

Acknowledgements

The HKIE Veneree Club would like to express their gratitude to the following individual and companies for their sponsorship to the Engineering Exposition.

Mr. Kuok Hoi Sang

ATAL Engineering Group
CLP Power Hong Kong Limited
FSE Engineering Group Limited
MTR Corporation Limited
REC Engineering Company Limited
Siemens Limited, Smart Infrastructure
The Hongkong Electric Company Limited

(Companies are listed in alphabetic order)

Chairman's Message – Veneree Club

Veneree Club "睿賢學社" continues its unwavering commitment of organising annual Engineering Exposition for young engineers. To enable more interactive communication, after the main talks delivered by the invited distinguished speakers, we organise break-out sessions, in which smaller groups of young engineers can engage directly with the speakers, gaining invaluable insights and personalized guidance.

In a professional landscape that demands both technical prowess and resilient leadership, continuous inspiration is key. That is why this year's exposition centres on an encouraging and essential theme: "Engineering Excellence." We believe this theme will resonate deeply with engineers looking to direct their careers toward outstanding success. It is vital to equip ourselves with the necessary knowledge to solve complex problems, but we equally need positive energy and strategic insight for career advancement.

The Engineering Exposition aims to provide a platform for distinguished engineers to candidly share their valuable experience in how they successfully overcome obstacles and navigate through their career paths to achieve excellence. Their sharing will undoubtedly help broaden young engineers' horizons and enhance their professional exposure. In 2025 we have taken initiative to organise Professional Assessment Workshops for more experienced young engineers in preparing for application to be Corporate Members of the HKIE, the workshops are to enhance written and oral presentation skills required in the Professional Assessment.

Veneree Club as a society of retired engineers continues to organize monthly talks on various interesting topics and regular outing visits to places of interest to enable our members to come together to expand their knowledge as well as meet new and old friends.

On behalf of the Club, I would like to express my heartfelt gratitude to the sponsors who have provided us with much needed financial resources and enabled this meaningful activity to be carried out. I am also deeply grateful to all invited speakers for sharing their valuable successful engineering experience with young engineers. Of course, without the contribution of our organising committee members, it would not be possible to hold this event. Finally, I would like to thank all the participants for attending this event. I hope you all have a successful and excellent career ahead.

Ir Simon CHUNG Fuk Wai
Chairman, Veneree Club
The Hong Kong Institution of Engineers
Session 2025/2026

Engineering Exposition 2026 Organizing Chairman's Message

Building on the tremendous success and positive feedback from Engineering Exposition 2025, the HKIE Veneree Club is delighted to present our annual flagship event—Engineering Exposition 2026—designed especially for young engineers. This forum continues to be a valuable platform for personal and professional growth, featuring insightful sharing from some of the industry's most experienced minds.

This year, we are honored to host five distinguished engineers and an HKIE Outstanding Young Engineer Award winner. Together, they bring over 200 years of combined experience across diverse engineering fields. Through candid stories and interactive breakout sessions, participants will gain a deeper understanding of what it takes to build a successful and impactful engineering career.

With the ongoing development of the Greater Bay Area (GBA), integration between Hong Kong and mainland cities is creating unprecedented opportunities across all sectors, including engineering. We believe the perspectives shared at this Exposition will equip our young engineers with the foresight and inspiration to seize these emerging prospects.

On behalf of the Organizing Committee, I extend my sincere gratitude to our sponsors, participants, and committee members. Their support and dedication are what make Engineering Exposition 2026 possible and promise yet another memorable and enriching experience.

Let's inspire, connect, and engineer the future—together.

Ir LO Pak Cheong
Organizing Committee Chairman
Engineering Exposition 2026

Engineering Exposition 2025 Organizing Committee

Organizing Committee Chairman:	**Ir LO Pak Cheong**	
Members:	**Ir David CHENG**	**Ir Simon CHIANG King Wah**
	Ir Heinz CHIU	**Ir Simon CHUNG Fuk Wai**
	Ir Anthony KWAN Lok Fong	**Ir Philip KWONG Sze Fai**
	Ir Allan POON	**Ir Stephen LEE Ming Ching**
	Ir William LI Wai Lim	**Ir Peter TSANG Kang Ho**
	Ir Wilson TSANG Sau Kit	**Ir YEE Tak Chow**
Advisor:	**Ir Dr CHAN Fuk Cheung**	

Past Engineering Exposition Events

The past Engineering Exposition Events are listed below:

2013 held on 11 May 2013 at Novotel Century HK Hotel*

Speakers were: Ir CHEUNG Shu Wing, Ir Dr CHOI Yu Leuk, Ir Dr LAU Ching Kwong, Ir Gregory LO Chun Hung, Ir John SZE Tak Wei, Mr WONG Tak Ko, Ir Dr CHAN Fuk Cheung, Ir CHOW Che King, Ir LAM Hing Cheung, Ir Dr Wanbil LEE, Ir Ian ROBERTSON, Ir Jolly WONG CHun Kau

2014 held on 10 May 2014 at Regal Hong Kong Hotel*

Speakers were: Ir Dr James LAU Chi-wang, Ir Dr Otto POON Lok-to, Ir Benny WONG Yiu-Kam, Ir Prof CHAN Ching-Chuen, Ir Dr CHENG Hon-Kwan, Ir Dr George SZE Lai-wah

*(jointly organised with HKIE Young Members Committee)

2015 held on 30 May 2015 at HKPolyU Chiang Chen Studio Theatre

Speakers were: Ir Dr John LUK, Ir Victor NG, Ir Louis SZETO Ir CHOW Tang Fai, Ir HO Chi Shing, Ir MA Lee Tak

2016 held on 30 Apr 2016 at HKPolyU Chiang Chen Studio Theatre

Speakers were: Ir Prof Daniel LAI, Ir Edmund LEUNG, Ir Greg WONG Ir HO Wing Ip, Ir YING Tsie Cheong, Ir YUEN Sui See

2017 held on 8 Apr 2017 at HKPolyU Chiang Chen Studio Theatre

Speakers were: Ir Allan CHAN Sau Kit, Ir IP Pak Nin, Ir WONG Chi Kwong Ir CHAN Chi CHiu, Ir Patrick NG Ying Piu, Ir Prof Joshua SL WONG

2018 held on 21 Apr 2018 at HKPolyU Chiang Chen Studio Theatre

Speakers were: Ir John SV CHAI, Ir Raymond LIN Kam Siu, Ir WONG Wai Ho Ir LEE Wan Lik, Ir Dr Michael YH Li, Ir Stanley SIU Hiu Fai

2019 held on 13 Apr 2019 at HKPolyU Chiang Chen Studio Theatre

Speakers were: Ir Dr CHAN Chun Leung, Ir Regis CHEE Lap Gee, Ir HON Chi Keung Ir Howard LOK Tat Hong, Ir TAI Tak Him, Ir Peter WONG Kwok Keung

(Due to COVID-19, no Engineering Exposition Events for 2020 and 2021 were held.)

2022 held on 19 Mar 2022 via Zoom

Speakers were: Ir Harry LAI Hon Chung, Ir Ivy LEUNG Yick Laam, Ir Timothy SUEN Ir Dr HO Pui Tak, Ir Duncan WONG, Ir Arthur YUNG

2023 held on 18 Mar 2023 held at HKIE HQ

Speakers were: Ir Dr Alex CHAN Siu Kun, Ir Stephen CHIK Wai Keung, Ir CHOI Chun Ming, Ir Alfred SIT Wing Hang, Ir TANG Whai Tak, Ir Dr Herman TSUI Yik Wai

2024 held on 23 Mar 2024 held at HKIE HQ

Speakers were: Ir Frank CHAN Fan, Ir Dr Clarence Edward CHOI, Ir Gary KO Chi Wai, Ir Enoch LAM Tin Sing, Ir Joseph LEUNG Chi Ming, Ir WAI Chi Sing

2025 held on 15 Mar 2025 held at HKIE HQ

Speakers were: Ir Prof Elvis AU Wai Kwong, Ir Dr Lilian HUI Ming Fong, Ir Dr David KWOK Tai Wai, Ir LAU Chun Kay, Ir LEUNG Chi Lap, Ir SImon NGO Siu Hing

Ir Peter CHAK Chi Kin

BSc(Eng), MBA, FHKIE, FIGEM, CEng,
機械正高級工程師(內地人社)

Discipline: Gas, Energy, Manufacturing, Industrial and Systems

Ir Peter Chak is the Director of K & P Engineering Pro Company, an engineering service consultancy. He was retired from the Hong Kong and China Gas Company Limited (Towngas) after working for over 40 years. Throughout his tenure, he had engaged in a wide array of functions including gas project design and installation, gas pipes, appliances and systems installation, customer service maintenance (residential, commercial & industrial), regular safety inspection, customer service hotline, new product development, project planning & implementation, business development, strategic planning, market planning and research, and training.

Ir Peter Chak actively serves the community engineering profession. He is currently the Chairman of Continuing Professional Development Committee of the HKIE. He was a Council Member of the HKIE and Chairman of MIS Division, MIS Discipline and Gas & Energy Division. Also, he was a Council Member of IGEM and a member of IVE Engineering Advisory Board, a Departmental Advisory Committee member and Industrial Advisor of the Department of Systems Engineering and Engineering Management at the City University of Hong Kong. He is the founding President of the HKU Industrial and Systems Engineering Alumni Association. Also, he is a member of a few Government committees.

Motto

Engineering with innovation. Designing with purpose.
Precision in every detail. Integrity in every decision.
Bridging human need and technical possibility for a sustainable future.

Case 1

At Towngas, I had managed the tendering for two pioneering projects in Hong Kong: the Design, Build & Operation contract for dedicated LPG filling stations – Chai Wan and West Kowloon (1999) and the EPC contract for a Permanent Aviation Fuel Facility (2001). Starting with only basic Auto LPG knowledge and no experience in aviation fuel, I proactively bridged these knowledge gaps through self-reading and

by consulting extensively with experienced peers. My involvement in professional bodies like the HKIE was instrumental in building a robust network. I also expanded my skill set to include financial modelling for proposal drafting. Also, in working on the proposal, a firm commitment to HSE and user-centric design was crucial. Both projects were ultimately awarded to Towngas.

This experience taught me that embracing new challenges is the fastest path to growth. It requires a proactive and hungry mindset - continuously learning, developing new competencies, and seeking knowledge from others. In fact, I have found that the deepest understanding often comes from sharing that knowledge with others, solidifying my own learning through teaching i.e. the best way to learn is to teach.

Case 2

It is a privilege to work in a company with shared priority. Safety is a core value at Towngas. The commitment is clearly demonstrated by the evolution of the safety inspection methods for gas pipes running along the external walls of buildings. We have transformed our approach from traditional visual checks and manual leak detection to a state-of-the-art, predictive system. This journey began with basic methods like inspections through windows and the use of scaffolds. We then progressed through stages like using extendable mirror, laser methane gun, specialized inspection robot and inspection drone, to a long-range camera with a laser methane gun, enhanced by an AI-powered riser health analytics system.

This represents a fundamental transformation from a reactive "Fail and Fix" model to a proactive "Predict and Prevent" paradigm. To sustain this progress, we foster a culture of continuous improvement and accountability. By combining a focus on safety-minded behaviors with the adoption of technological advancements, we achieve not only incremental gains but also fundamental paradigm shifts. Maintaining an innovative mindset allows us to continually refine our processes and uphold our unwavering commitment to safety and quality.

Engineering Excellence

Engineering Excellence is a compass, not a checkpoint. Let's set it as the End in Minds, not a single action. It is a lifelong pursuit that demands more than technical competence. It demands a mindset built on integrity, curiosity, responsibility, resilience and collaboration. This journey must be guided by an unwavering respect to HSE/ESG principles and a positive culture and attitude.

To navigate this path, we can focus on four foundational pillars: H, K, I, and E.

H – Human-Centered Engineering: At its heart, engineering is a humanist discipline. Excellence means designing systems, products or processes that are intuitive, accessible and enhance human experience. Never lose sight of the people on the other side of your work.

K – Knowledge as a Keystone: A deep and comprehensive understanding of your domain is non-negotiable. In an era transformed by AI, Blockchain, Cloud, Data, and breakthroughs in Quantum Computing and Biotechnology, Low-attitude Technology, New Quality Productive Forces, etc. Continuing Professional Development is the key to staying professional.

I – Innovation through Insight: To be an innovative engineer is to be curious, empathetic, and systematic. Harness methodologies like Design Thinking, First Principles, TRIZ, and SCAMPER to channel your creativity into tangible, groundbreaking solutions.

E – Engagement in Action: A journey of a thousand miles begins with a single step. Engage proactively with your work, understand it holistically, get your hands dirty, and collaborate constructively with all stakeholders. The best outcomes are forged through this integrated engagement.

Remember, Engineering Excellence is a continuous journey. It is the relentless pursuit of delivering superior value through quality, efficiency, safety, reliability and predictability, all while connecting to the ever-changing needs of society. Your work will touch millions of lives. Your hands will build tomorrow. You are the architects of the future. You have to unleash your talent to prevail over the challenges. Let's go for launch!

Ir Francis CHENG Cho Ying

Bechelor's degree in Chemistry, FHKIE, FRSC, C.Chem

Disciplines: Control, Automation & Instrumentation

Ir Francis C.Y. Cheng is an engineer with over 45 years of working experience in the power industry. He joined The Hongkong Electric Company, Limited (HK Electric) in 1979. He was the Station Manager of Lamma Power Station before promoting to Operations Director in 2017 overseeing the electricity generation, transmission and distribution, as well as system operation and information technology functions of HK Electric. Mr. Cheng was further promoted to his present position of Managing Director of HK Electric in July 2023, and continues leading the Group to drive innovation and achieve zero-carbon energy while maintaining world-class electricity-supply service with reliability over 99.9999%. He is also the Chief Executive Officer of HK Electric Investments Limited and an executive director of Power Assets Holdings Limited.

Motto Give it a Try!

Case 1 In the early 1990s, I led a small team to introduce condition monitoring, vibration technology, performance monitoring, predictive maintenance, reliability-centred maintenance and plant ownership programs to improve the operation and maintenance of Lamma Power Station. We have been able to continuously improve the reliability of the power station even with the reduction of headcount from about 1,200 to less than 500, as of today. The road leading to today's success has not been an easy one. It requires meticulous planning so that the job and career of colleagues are not adversely affected. It also needs courage and determination.

As a result of our study and practice of vibration technology, our home-grown engineers are able to balance nearly all rotating equipment in the power stations, from fans, pumps to huge turbines. Equipment maintenance is mainly based on the principle of Reliability-centred maintenance to save costs, reduce equipment downtime and improve reliability.

Case 2 In the early 2000s, the only generation unit in Lamma Power Station with a generator stator cooling system was found to have some red oxides partially blocking its fine cooling passages. We conducted extensive paper research into the phenomenon and suspected it was due to the intermittent

make-up to the cooling system resulting in a cyclic formation of cuprous oxide (Cu2O) and cupric oxide (CuO). A thorough check of the cooling system was carried out to identify leakages at pump glands, leaking valves, etc. Whenever high makeup is recorded, checks are immediately carried out to make sure leakages are minimised, if not completely stopped at all. Alarms are set up to monitor the temperature at different areas of the stator to detect early problems, The monitoring and preventive measures have been very successful. After an offline chemical cleaning of the system in the 2000s, the problem has not recurred.

Engineering Excellence

1. Get a master's degree in your own discipline or a related engineering discipline as early as possible. When you have a family or kids, you will find it quite difficult to spare your time to do it. If you can afford the time, try to acquire a doctor's degree also.
2. Participate in professional institutes and get connection with fellow engineers of your discipline and other disciplines. By interacting with other engineers and professionals, you will be able to learn new things and generate your own new ideas.
3. Continue reading journals to stay ahead in the pursuit of your professional knowledge.
4. Use your smart phone to learn new things and acquire new knowledge besides using it as a social-media tool.
5. Give it a try! If you are asked by your boss to do projects that you have no knowledge or not familiar with. Don't refuse. It will be a good learning opportunity. Most probably, out of all his/her subordinates, he/she has picked you as the most suitable person to do the job.
6. Be curious! Try to understand not only your domain areas of your job but extend it to other disciplines that are closely related to your job and support the operation of your organization. You will find the knowledge will benefit you someday. Even if it doesn't help your carrying out of your duties or your progression, you will be able to learn things that are out of your own scope.
7. Improve your spoken and written English, Mandarin and written Chinese every day. When you are promoted to responsible or management positions, you are expected to read and write quickly and fluently.
8. Learn a new language, it adds colours to your life and will help you connect better with more people.

Ir Dr Tony LEE Kar Yun

EngD, MPhil, MBA, AP(HK), FHKIE, MIEE, CEng,
Professorship at Beijing Jiaotong University

Discipline: Electrical

Ir Dr Tony Lee Kar Yun has 40 years of experience in the areas of railway operations and engineering systems for modern transit systems including high speed line, covering infrastructure and rolling stock domains.

Formerly the Operations and Innovation Director at MTR Corporation and a Member of the Executive Directorate of MTR Corporation, Dr Lee managed and oversaw MTR's railway operation and related asset performance, asset management, railway projects operations planning and development, operations safety and quality.

Dr Lee serves on the Hong Kong Quality Assurance Agency Governing Council, the Common Spatial Data Advisory Committee of Hong Kong Government, and the Technical Committee of National Rail Transit Electrification and Automation Engineering Technology Research Centre (Hong Kong Branch). He is currently serving Land Transport Authority in Singapore as technical advisor on railway operations and engineering.

Motto
安全第一, 質量至上 (Safety First, Quality Always)
厚德載物, 自強不息 (Great virtue upholds all things, Strive constantly for self-improvement)

Case 1

In 2019, the COVID-19 pandemic and the Public Order Event not only tested the resilience of railway operations but also the resilience of engineers as well. It caused sharp declines in patronage at that time and transforming travel, work, and shopping patterns. A new norm was established. These challenges underscored the vital role of "Adaptability" and "Agility" to deliver "A-class" service (the 3 As). Railway operators and engineers, including me,

like other disciplines' engineers at the time, continued upholding the highest standards of asset performance in terms of safety and quality, and swiftly adjust train schedule, optimize cost, and harness technology to elevate the passenger experience in a customer-centric manner. Engineers must have an unwavering commitment to sustainability and reliability drives to excel, even in adversity. Only by embracing continuous learning and responding decisively to uncertainty, can then ensure the railway services remain dependable and innovative. The dynamic world demands Engineers to lead with integrity, agility, passion, and purpose, inspiring confidence in every journey.

Case 2

On innovation and technology development, MTR's Innovation and Technology Blueprint was formulated to set the way forward. It charts a path to integrate digital technologies into railway operations, property development, and asset management. It focuses on practical innovations such as predictive maintenance, smart mobility, digital property management, and intelligent construction to enhance reliability and service quality. The plan emphasizes purposeful innovation. Each initiative must deliver real benefits to passengers and stakeholders. By investing in people's digital skills and collaborating with startups, universities, and research partners, MTR's objective to build innovation capability while maintaining safety and operational excellence is being realized. This blueprint envisions a future where physical and digital excellence converge, creating a smarter, more efficient railway that advances Hong Kong's mobility and community connectivity.

Engineering Excellence

Engineers are encouraged to embrace the principle of 安全第一, 質量至上 (Safety First, Quality Always) 厚德載物, 自強不息 (Great virtue upholds all things, Strive constantly for self-improvement), recognizing that safety and quality are not just technical requirements but moral responsibilities, as every decision in any engineering directly impacts human lives, particularly on railway engineering i.e. passengers and staff. Even with world-class performance, small lapses can affect thousands, so relentless improvement and a safety-first mindset are essential.

The Cynefin framework is a practical tool for adaptive leadership, helping engineers respond effectively to simple, complicated, complex, chaotic, and disordered situations. Asset management on any infrastructure, guided by ISO 55001:2024 and ISO 55013:2024, requires managing both tangible assets ("HAVE") and intangible value ("HAVE NOT"), such as data and knowledge, with foresight and strict compliance to prevent accidents and seize opportunities.

If a business loses its core competency, it cannot create value; without sufficient profit, it cannot bear risk; and without risk, there is no future. Only by continuously strengthening core competence can engineer create more possibilities for tomorrow. Without possibilities, we have no tomorrow. Innovation is essential to strengthening one's core competency, but it's not just about sudden inspiration—it demands persistent effort and execution.

It is important to stay abreast of technological advancements, especially in AI, and being aware of mega trends like digitalization, sustainability, and security, while cultivating leadership qualities such as vision, integrity, communication, agility and adaptability.

Finally, engineers are urged to pursue continuous self-improvement, ethical leadership, and paradigm shifts to achieve long-term success and fulfilment.

First, let's move from "Great to do Good" to "Bring Good to Great." This means not just settling for good deeds but striving to elevate goodness to its highest potential. It's about perfecting the impact we make and inspiring others through excellence.

Second, we shift from "Love to Work" to "Work to Love." Instead of waiting to find passion before we begin, we commit deeply to our work, allowing love and fulfillment to grow naturally through dedication and purpose.

Finally, we change from "Lead to Earn" to "Lead to Learn." True leadership is not about rewards or recognition. It's about embracing growth, humility, and continuous learning so we can empower others and lead with wisdom.

Ir Dr Leo LEUNG Kwok Kee

BSc (First Class Honours), MSc (Distinction) in Earthquake Engineering and Structural Dynamics, DIC, HonDTech, Chartered Structural, Civil, Highways, Transport and Logistics Engineer, Qualified PRC National Class 1 Registered Structural Engineer, Professor-Level Senior Engineer in the Mainland, specialized in Superhighways, FHKIE, R.P.E.

Discipline: Civil, Structural, Logistics & Transportation

Ir Dr Leo Leung, possesses over 40 years of engineering experience. He pursued advanced studies in the United Kingdom, where he obtained Bachelor's, Master's, and Honorary Doctoral Degrees. Following his graduation, he worked in Singapore and the UK and subsequently travelled extensively for business or work assignments across UK, Europe, East Africa, Southeast Asia, and various provinces and cities in China. Through his work, he has engaged with countless individuals from diverse backgrounds, regions, and across many countries for various development projects. These include government/public, semi-public, and private institutions, as well as design and construction firms. His experience spans large-scale, cross-disciplinary infrastructure developments such as highways, major bridges, power plants, railway viaducts, high-rise buildings, hotels, commercial-residential complexes, dams, tunnels, and more. He possesses particularly deep expertise and knowledge in earthquake-resistant design and slipform and climbform techniques.

Motto
Quest for Most Efficient Solution to serve what's Needed

Case 1 Listen and learn from all people and devise to achieve a highly value-added solution

Listening to everyone involved in a project has become one of the most valuable inputs in practice in my career as a Civil and Structural engineer. On a recent building site, early coordination meetings included not only the client and architect, E&M engineers, but also foremen, safety officers, nearby residents, and facility operation users. Each group raised different concerns: workers highlighted access and sequencing issues, residents worried about noise and dust, and the client focused on long term maintenance and flexibility.

Taking the time to actively listen to and sink in these perspectives helped identify clashes in the layout, refine the construction method, and adjust working hours to reduce community disturbance. The final solution—a revised phasing plan and minor design changes—reduced rework, improved safety, and building trust with stakeholders. This experience reinforced that effective engineering solutions come from treating every voice on the project as a meaningful source of information and fine tuning, not an obstacle.

Case 2 Solving Construction Issues

Working on a high-rise 1000-rooms hotel tower in the busiest location of Wan Chai, highlighted how critical coordination and communication are in vertical construction. As a Civil engineer in handling various projects, attention is important on structural details, core layout, and crane locations, but also site access details. Finishing trades, subcontractors and safety teams all faced constraints in limited floor space, lift availability, and material handling. Regular coordination meetings and a shared look-ahead schedule helped align work fronts and reduce clashes between trades on upper floors. Feedback from supervisors also led to improvements in access ways, temporary edge protection, and housekeeping standards, which reduced near-miss incidents. Looking back, the most valuable lesson was that a high-rise project cannot succeed through only design excellence alone; it needs disciplined planning, transparent and efficient communication, and respect for the practical insights of those executing the work at height every day.

Working on a high-rise construction project reshaped the way safety is viewed in daily practice. At the beginning, safety felt like a set of procedures and checklists, but working at height quickly showed that every control measure represents someone's life. Daily coordination with supervisors, lifting teams, and scaffolders made clear how critical proper edge protection, secured platforms, and disciplined housekeeping are to preventing falls and falling objects. Regular safety walks and near-miss reporting sessions helped the team spot issues such as improvised access, loose materials at slab edges, and inadequate signage around lift shafts.

What stood out most was how open and direct communication changed behaviour: when workers felt comfortable raising concerns about harness use, crane signals, or weather conditions, risks were reduced early instead of after incidents. This experience reinforced a personal commitment to treating safety not as compliance, but as a core value guiding every site decision.

Engineering Excellence

Engineering is fundamentally the application of scientific knowledge and technological principles to solve real-world problems. However, even the most brilliant minds cannot single-handedly account for the multifaceted complexities of modern projects. The Chinese proverb "three cobblers surpass one wise man" underscores a timeless truth: no individual, however gifted, can match the combined insights of a diverse team. While scientific theories and cutting-edge tools form the foundation, engineering solutions thrive on collaboration, context, and pragmatic adaptability.

A genius engineer may master technical theory, but practical challenges—budget constraints, environmental factors, cultural nuances—demand input from stakeholders beyond textbooks. For instance, a client's operational staff might highlight maintenance challenges invisible during design; end-users could reveal ergonomic flaws in prototypes; local communities might raise ecological/environmental concerns unaddressed by standard protocols. Listening meticulously allows engineers to identify these blind spots and integrate solutions early, avoiding costly revisions. This process requires discernment: "pocketing" actionable ideas (for example, a contractor's cost-saving construction method) while discarding impractical ones.

Ir Paul WU Wai Keung

MSc, CEng R.P.E. FHKIE

Disciplines: Electrical, Mechanical, Electronic, Building Services

Ir Paul Wu possesses over 40 years of extensive experience in technical and management capacities within the construction industry, as well as the seaport and airport sectors. He worked with the Airport Authority HK for over 20 years where he oversaw the development , operations and maintenance of the complex airport systems and large scale infrastructures. In addition to managing the airport assets, he acted as the Technical Leader for numerous new technology projects in HKIA including the implementation of pioneering systems in enhancing the airport operational and technological capabilities.

Motto

3C i.e. Commitment, Confidence, Competence.

Case 1 RFID enabled Baggage Management and Reconciliation System

The Implementation of the RFID enabled Baggage Management and Reconciliation System in HKIA was a pioneering project and became a "Showcase" in airport baggage handling system over the world. When the project started in 2003, RFID technology application in baggage handling was still developing. The engineering team faced tremendous challenges and difficulties such as the integration of various systems, system compatibility, modifications on a live operational system , radiation issues, compliance of regulations and standards, operators training, fixing of RFID tags to baggage etc., On detection reliability, it was critical to ensure successful and consistent detection of RFID tags at various RFID read points under very difficult situations with signal interference, different bag materials and tag orientation, and other technical and operational factors.

We have contributed successfully on this Project to achieve an increased read rate accuracy from about 80% with barcode tags to 97% with RFID tags, enabling more reliable tracking and reconciliation. This automation and improved tracking efficiency allowed processing more bags and reduced average handling time, thus enhancing passenger experience with accurate baggage tracking and reduced mishandling incidents and delays.

Case 2 Runway Lighting Maintenance

Runway lighting provides essential directional and positional cues to pilots during landing and takeoff. Runways have short windows for maintenance and inspection due to constant flight operations, demanding rapid yet accurate checking methods. It is critical to ensure the airfield ground lighting (AGL) in meeting the required illumination levels and are correctly and securely positioned with precise measurement and alignment. Traditional inspection requires personnel to be physically present on active runways which is time consuming and may cause interruption to runway operations.

We had developed an efficient and effective inspection method by using advanced high throughout scanning machine installed on vehicle for the AGL inspection. This is a newly invented automated inspection and checking system on AGL. It can achieve immediate detection of defects at the lightings, lighting alignment and illumination level etc., With the aid of this system, the AGL inspection time is much reduced and enhanced the runway operation efficiency.

Engineering Excellence

Learning

The key issue of learning emphasizes the importance of continuous professional development, where an engineer actively seeks to improve their skills and knowledge throughout their career. This ongoing growth allows them to continuously add value to their work and projects. Being innovative and taking initiative are crucial components of learning, as they drive engineers to explore new ideas and approaches that can improve engineering outcomes.

Sharing

In terms of sharing, engineering excellence requires being a good team player who collaborates effectively with others. A successful engineer is willing to share both knowledge and success with teammates, creating a culture of mutual support and achievement. Demonstrating leadership is also important, as it inspires and guides the team toward common goals and helps solve complex challenges together.

Caring

Caring focuses on the engineer's passion and full commitment to their work. Taking ownership of problems means accepting responsibility and being proactive in finding solutions. Caring also involves considering not only one's own work but also the broader interests of the business and other stakeholders. An engineer committed to excellence aims to work in the best interests of all parties involved, acting as a positive solution provider by approaching challenges with optimism and determination.

Ir Dr ZHENG Pai

PhD UoA, M.Eng. BUAA, B.Eng. HUST, SM'IEEE/CMES, M'HKIE/SME/ASME, AM'CIRP

Disciplines: Manufacturing and Industrial Engineering

Ir Prof Pai Zheng is currently an Associate Professor, Wong Tit-Shing Endowed Young Scholar in Smart Robotics, in the Department of Industrial and Systems Engineering at PolyU, and the Associate Director of PolyU-Wuxi Technology and Innovation Research Institute. Dr Zheng is a recipient of the HKIE Young Engineer of the Year Award (2025), SME Outstanding Young Manufacturing Engineers Award (2024), NSFC Excellent Young Scientist Fund (2024), HKPU Young Innovative Researcher Award (2023), and Global Top 50 AI+X Chinese Scholars by Baidu (2022). He serves as the Chair of IEEE Hong Kong Section Systems, Man and Cybernetics Chapter, Co-chair of IEEE TC on Digital Manufacturing and Human-Centered Automation, Scientific Committee Member of SME | NAMRI, Editor of HKIE, Associate Editor of IEEE TASE/JMS/JIMS/JCLP.

Motto
Difficult, but not impossible. 知難而上

Case 1 Mutual-cognitive human-robot collaboration (HRC)

TBy cooperating with COMAC, my team and I proposed a next-generation Zero-code programming framework for large aircraft hole-drilling process, empowered by large language models and vision-language models, to ease the heavy human workload and shorten the deployment cycle onsite. By integrating the reasoning capabilities of LLMs into industrial robotic systems, the framework prioritizes intuitive, efficient, and operator-friendly interaction, establishing a novel paradigm for industrial applications. Additionally, the system incorporates a cognitive assistance module to reduce the cognitive burden on unskilled operators. Moreover, an LLM-based low-code programming module was designed, employing a multi-agent mechanism for intent recognition, parameter extraction, and human verification, thereby significantly enhancing the system's ability to robustly handle unstructured natural language instructions in industrial environments. Its final performance was validated in COMAC testbed with convincing result.

Case 2 Cognitive predictive maintenance solution for industrial complex equipment

I have been acting as the Hong Kong PI of the National Key R&D Plan Project entitled "Industrial big data-enabled smart maintenance technology for complex equipment" (09/2021 – 08/2023), together with our Mainland and Hong Kong industrial partners include Beijing Aerospace Data Stock Company, Hanzheng Testing Technology Co. Ltd., Instrumentation Technology & Economy Institute, P.R. China, Hong Kong INDICS International Technology Co., Ltd., and Altai Technologies Limited. To overcome the bottlenecks of the high maintenance cost, long cycle time, and dependence on human expertise for complex equipment maintenance, the team has developed a set of graph-based smart maintenance methodologies for complex equipment based on industrial big data. By leveraging the cutting-edge Industrial Internet-of-Things architecture and information communication technology, the main research content includes the reliable acquisition and fusion of multi-source heterogeneous sensing equipment big data, efficient domain-specific knowledge management, and the predictive maintenance scheme of the key components. The efficacy of the developed AI solution has been partially demonstrated in an oil drilling platform in Chengdu, China.

Engineering Excellence

Yet as a young engineer, I may not be senior or qualified enough to offer any advice on how to achieve engineering excellence. Nevertheless, THREE useful tips along the journey can be shared for your kind reference.

Firstly, always learn from senior people and practice. Engineering requires more physical practices than any other disciplines, and hence, keep learning expertise and conducting hands-on training based on your Shifu's experience is a prerequisite.

Secondly, hold a grand vision but start from scratch. On one hand, engineers like us are the ones who build up the world, so you must hold a long-term goal to look at the research or projects you are undertaking for lifetime. On the other hand, you should recap how to achieve this grand goal by establishing a potential pathway stepwise from limited capabilities. For instance, my grand vision is to construct a human-machine symbiotic manufacturing paradigm, where human operators and agents can collaborate, co-create and even co-evolve. Hence, I started the journey by securing small research

projects, recruiting young talents/students, developing interesting demos and talking to potential industrial partners who would like to collaborate with us. Almost 5 years spent to date, we have accumulated 20 million+ HKD funding to make things better and bigger.

Thirdly, ***impact is what you should pay most attention to***. As an engineer, I believe a good manner to evaluate your job or career is by its impact, that is, how much value you can contribute to society. It can be the scientific value to boost the innovation of the industry, the economic value gained from your technology, or even a social impact to human well-being. This has long been my perspective and position to look into the true value of an engineering work.

HKIE Veneree Club serves to enhance skill sets of our young engineers.

2 Major Events are planned to be held annually:

- **Engineering Exposition: sharing with 6 experienced engineers**
- **Professional Assessment Workshops: developing written and oral skills from experienced engineers**

HKIE Veneree Club 2025 Talk Activities

The following is a list of activities that Veneree Club organised during Jan 2025 to Jan 2026. In the third Wednesday morning of each month, Monthly Talk by guest speakers giving interesting topics is normally held.

Monthly Talks

15 Jan 2025	大律師講故仔
19 Feb 2025	Who will win the US-China competition?
19 Mar 2025	Our fight against common spinal pain conditions in Hong Kong
16 Apr 2025	Smart Technologies Driving Sustainable Smart Cities
21 May 2025	The "ABCD" of Digital Technologies and the Ethics of AI
16 Jun 2025	淺談認知障礙症
16 Jul 2025	奇妙的電
20 Aug 2025	香港及中國內地晶片的發展前景
25 Sep 2025	Top Cancers in Men
17 Oct 2025	「港人祖籍」 — 中山、珠海及澳門
19 Nov 2025	Fire Safety in Buildings
17 Dec 2025	香港機場發展一百周年
21 Jan 2026	Climate Change: Science, Impacts and Solutions via Food System Transformation

HKIE Veneree Club 2025 Visit Activities

The following is a list of visit activities that Veneree Club organised during Jan 2025 to Dec 2025:

Visits

12 Feb 2025	Visit to 房協長者安居資源中心
23 Apr 2025	Visit to Hong Kong Museum of Medical Sciences
134 Aug 2025	Visit to The Geospatial Lab (GeoLab)
26 Nov 2025	Visit to Hong Kong Heritage Discovery Centre (HDC)

HKIE THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會

Veneree Club 睿賢學社

睿賢學社

This is to certify that

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attended the

Engineering Exposition 2026

on

14 March 2026

from 08:45 - 12:30

at

The Hong Kong Institution of Engineers
9/F Island Beverley, No 1 Great George Street
Causeway Bay, Hong Kong

* 1. Name of participant to be written by the attendee.
2. Attendee should seek certification of his/her attendance by having the stamp of the organizer immediately after the event.
3. This certificate serves the purpose to record participation of an attendee only. The duration of the activity indicated above does not automatically grant the equivalent CPD days, but is entirely up to the discretion of the 'Engineering Supervisor' for pre-Corporate Membership.
4. Please contact your 'Engineering Supervisor' for further advice for recognition of CPD activities.

Engineering Exposition 2026 Programme

08:45 – 09:00	Registration
09:00 – 09:05	Opening by Oganising Committee Chairman: Ir PC LO
09:05 – 10:20	First Session (Speaker presentation and Panel Discussion)
10:20 – 10:30	Session Break for 10 minutes
10:30 – 11:45	Second Session (Speaker presentation and Panel Discussion)
11:45 – 11:50	Remark by Veneree Club Chairman: Ir Simon CHUNG
11:50 – 11:55	Moving to Breakout Room
11:55 – 12:30	Breakout Session (with one Speaker in a Breakout Room)

First Session Speakers:
Ir Peter CHAK
Ir Francis CHENG
Ir Dr Tony LEE

Second Session Speakers:
Ir Dr Leo LEUNG
Ir Paul WU
Ir Dr ZHENG Pai

Arrangement at Breakout Session:

Speaker	Breakout Room
Ir Dr Tony LEE	9/F, James Chiu + Dragages Room
Ir Francis CHENG	9/F, Sophie Chan Room
Ir Peter CHAK	9/F, ATAL Room
Ir Dr Leo LEUNG	10/F, Chun Wo Room
Ir Paul WU	10/F, Paul Y Room
Ir Dr ZHENG Pai	10/F, Hsin Chong Room