



Dear NUS Civil and Environmental Engineering Community,

I hope 2022 will be a very happy and healthy year for our students, faculty, staff, and alumni. A warm welcome to our students and colleagues returning to campus for a brand new term. Starting this year, the Faculty of Engineering (FOE) and the School of Design and Environment (SDE) will join to form the NUS College of Design and Engineering (CDE). The new college is led by Professor Aaron Thean, the former Dean of NUS Engineering. CDE marks a major evolutionary milestone, reflecting the increasing synergy between the broad disciplines of design and engineering to enable innovation in human-centric technologies, well-being, sustainability and the environment. The Department of Civil and Environmental Engineering in NUS has strong link with the Department of Architecture and Department of Buildings on research and education programmes. I am confident to forge greater synergy under the umbrella of the new college. For more information on CDE, please read the [full news release here](#).

2021 was a memorable year for our Class of 2021 & 2020 graduates, with 2 commencement ceremonies; a virtual one in Jun 2021 and face-to-face event on 1 Oct 2021. We are pleased to share that almost all our 2021 graduates from B. Eng (Civil) and B. Eng (Environmental) residing in Singapore have found employment within the first 6 months of graduation¹. We thank our industry partners for their strong support in providing career opportunities to our graduates during the COVID-19 period. In addition, our 2020 graduates from B. Eng (Civil) and B. Eng (Environmental) have done the department proud by achieving more than 95% employment rates in the [Graduate Employment Survey](#) conducted by the Ministry of Education. Our first batch of BTech Civil Engineering students have graduated this year and the BTech programme was given a provisional accreditation by the Engineering Accreditation Board in Oct 2020.

Starting in Aug 2021, students joining NUS Engineering will be able to enjoy greatly expanded learning pathways with the launch of a new undergraduate curriculum, which includes a Common Curriculum jointly developed with the School of Design and Environment and a more flexible, student-centric structure for students to design their own degrees. These changes will mean greater choice, breadth and flexibility in charting their university journeys, enabling them to seamlessly take courses from both schools, developing competencies across different fields. For instance, students starting in Aug 2021 may now choose to major in Civil Engineering while pursuing a minor in infrastructure management and finance and also able to specialize in digitalization in urban infrastructures, and complete a Bachelor's degree in four years.

For the new academic year AY2022, the Department will be offering a new second major on [Sustainable Urban Development \(SUD\)](#) in addition to the Department's current majors in Civil Engineering and Environmental Engineering. This second major will be available to all undergraduate students admitted in Aug 2021 from all disciplines within NUS. This SUD major will provide the basis for a holistic understanding of urban challenges such as "climate change mitigation & adaptation", "sustainable energy", and "food security" through the lens of economic, environmental, and social

¹ Based on internal graduate employment survey conducted by the Department of Civil and Environmental Engineering.

sustainability and will complement nicely to our current majors and students from other majors within and outside of CDE in addressing critical issues in climate change, energy, and urban city resilience.

The [Department Consultative Committee](#) (DCC) starts a new term (2021-2022) with members from the government agencies, private sector and professional bodies to foster closer relationship and cooperation with the industries and provide a mechanism for regular exchange of views relating to the long term planning and development of the Department in both teaching and research. We are honored to have Mr Chin Chi Leong, Deputy CEO (Building Control), Commissioner of Buildings, Building and Construction Authority as the Chairman and Er Lim Peng Hong, Managing Director, PH Consulting Pte. Ltd. and President of PE Board as Deputy Chairman. We will continue to make improvements to our curriculum to equip our graduates in meeting the growing changes and demands of the industry.

We are saddened by the recent passing of Emeritus Professor Lee Seng Lip. He passed away on 27 Nov at the age of 96. Having joined NUS in 1975 as a Professor and Head of Department for Civil Engineering, he held that position until 1989 when he was conferred an Emeritus Professorship. Emeritus Prof Lee is remembered by friends and colleagues as a great leader, educator and engineer who contributed significantly to the Department, the University and to the growth and development of Singapore. Thousands of former students, who have gone on to make their marks on industry and academia, also fondly remember the impact that Emeritus Prof Lee has made on their lives. We are truly honoured to have Emeritus Professor Lee as our pioneer in CEE family. His memory and legacy will remain forever etched in our minds and of those who knew him.

I thank you for your immense support for the past one year of working with me to overcome the challenges during the Covid-19 pandemic. Let's work together as a close knitted CEE community to build a stronger identity to brave the challenges ahead and serve our community. Do feel free to send us your feedback, suggestions, as well as information on internship and career opportunities for our students and graduates.

In closing, I wish all of you all well and safe.

With best wishes,

Richard Liew
Professor and Head,
Department of Civil and Environmental Engineering, NUS

<p><u>Commencement Ceremonies</u> for 2020 and 2021</p>	<p>NUS CEE <u>Ranked 2nd in QS</u> World University Subject Rankings</p>	<p><u>Research</u> <ul style="list-style-type: none"> ✚ Major Grants ✚ Research Clusters ✚ Research Brief </p>
<p>CEE Teaching Award <u>Winners</u></p>	<p><u>Won</u> NUS Safety & Health Award!</p>	<p><u>Promotions</u></p>
<p><u>Welcome</u> New Colleagues Farewell to Staff</p>	<p><u>Thanking</u> our Donors</p>	<p><u>New!</u> Research Awards for outstanding Graduate students</p>
<p><u>Outstanding</u> Engineering Young Alumni Award (OEYAA)</p>	<p>Department <u>Appointments</u></p>	<p>Faculty <u>Achievements:</u> <ul style="list-style-type: none"> ✚ Appointments ✚ Awards and Recognitions </p>
<p>Students and Research Staff <u>Achievements</u></p>	<p>Student & Alumni <u>Activities & Events</u></p>	<p><u>Stay Connected</u> with Us on Social Media!</p>

Commencement Ceremonies for 2020 and 2021

The commencement ceremonies for the class of 2020 and 2021 held in zoom on 29 Jun 2021 attracted more than 300 viewers for the 2 sessions. Mr Chin Chi Leong, Deputy CEO (Building Control), Commissioner of Buildings, Building and Construction Authority, was our [commencement guest speaker](#). Civil Engineering Alumni of class 2020 [Michael Tan](#), Engineer at ARUP was our valedictorian. The department celebrated the event by publishing our Congratulatory messages from CEE staff and student bodies in CEE website and social media platforms such as Instagram, Facebook. The physical on site [Commencement ceremonies](#) for a restricted group size was held on 1 Oct 2021. [\[go to Table of Contents\]](#)

NUS CEE Ranked 2nd in QS World University Subject Rankings

NUS Civil engineering has risen 7 places to emerge 2nd in the QS world University Subject Rankings 2021 ([QS World University rankings](#)). We ranked first in the QS Asia University Subject Rankings. The [QS ranking in Environmental Sciences](#) closest to our Environmental Engineering programme was ranked 11th place. We are delighted by the recognition that we continue to be among the top Civil Engineering programmes in Asia and the world. This is a wonderful achievement by our talented faculty members. [\[go to Table of Contents\]](#)

Major Grants

The Department has continued to achieve new height in securing grants for their research. Congratulations to our colleagues on winning the following major grant awards (total project value >\$1M) with project start date from Jan 2021.

Principal Investigator & Co- Investigators	Funding Programme (Source of Funding)	Dept.	Project Title	Implemented month
Prof Liew Jat Yuen, Richard; Assoc Prof Poh Leong Hien; Assoc Prof Pang Sze Dai; Dr. Kong Kian Hau	Ministry of Home Affairs (MHA)	CEE	Development of Design Guidelines for Precast Concrete and Steel-Composite Structures against Progressive Collapse	Feb 2021
Prof Chua Kim Huat, David; Dr. Justin Yeoh Ker-Wei; Dr. Elliot Law; Dr. Paul Ong Pang Awn	Cities of Tomorrow R&D Programme: Advanced Construction Research Trust (MND)	CEE	Intelligent Lifting Frame for PPVC and Precast Construction	Feb 2021
Assoc Prof Ong Ghim Ping, Raymond; Prof Ng How Yong; Assoc Prof Ouyang Jianyong; Assoc Prof Huang Zhiwei	Urban Mobility Grand Challenge (NRF)	NERI	Plastic Roads: Developing New Bituminous-Plastic Composite	Mar 2021

			Pavements Using Plastic Wastes for Potential Implementation in Singapore	
Prof Liu Li-Fan, Philip; Dr. Yuan Jing (former CEE academic staff)	(PUB)	CEE	National Coastal-Inland Flood Model for Climate Change	Apr 2021
Assoc Prof He Jianzhong; Assoc Prof Yang Kun-Lin	Singapore Food Story R&D Programme – 2020 (NRF)	CEE	Achieving a Sustainable Aquaculture Environment by Specialized Microbes	May 2021
Dr Justin Yeoh Ker Wei Co-I: Chew Yit Lin, Michael (Building); Wang Qian (Building); Ong Ghim Ping, Raymond; Lee Wai Leong, William	NATIONAL ROBOTICS PROGRAMME (NRP) - ROBOTICS DOMAIN SPECIFIC (RDS) (A*STAR)	CEE; ARC; SDE	Integrated Robotic-BIM Inspection System	Jul 2021
Assoc Prof Pang Sze Dai; Prof Balasubramanian, Rajasekhar; Assoc Prof Daniel John Blackwood; Assoc Prof Poh Leong Hien; Dr. Geng Guoqing; Dr. Du Hongjian	Cities of Tomorrow R&D Programme (MND)	CEE	Resilient Building Façade with Robust Material Testing and Machine Learning Framework	Sep 2021

Research Clusters

To strategize our research efforts with our consolidated expertise and to address the needs of a future research landscape, the Department has formed [six research clusters](#) to embrace interdisciplinary research:

- 1) **Climate Change Mitigation** – Prof Rajasekhar Balasubramanian (Director)
- 2) **Built Environment 4.0** - Prof David Chua (Director)
- 3) **Environmental Protection and Sustainability** - Prof Hu Jiangyong (Director)
- 4) **Ocean Infrastructure and Renewables** - Prof Chow Yean Khaw (Director)
- 5) **Resilient Infrastructures** - Assoc Prof Qian Xudong (Director)
- 6) **Smart and Liveable Cities** - Prof Meng Qiang (Director)

CEE Department held our inaugural Research Futures Webinar Series – Climate Change Mitigation on 19 Oct 2021, involved 9 academic staff and attended by over 150 participants.

Research Brief

Click at our inaugural issue of [Research Brief](#) to share with you CEE Department's research highlights and activities in 2021.

[\[go to Table of Contents\]](#)

CEE Teaching Award Winners

Our Department prides ourselves to have a team of dedicated teaching staff to provide high quality teaching to our students. The following colleagues have received the teaching awards for AY 2019/2020:

- 1) **Engineering Educator Award** - **Dr. Kuang Sze Chiang, Kevin** and **Assoc Prof Pang Sze Dai**
- 2) **Faculty Teaching Excellence Award** - **Dr. Du Hongjian, Dr. Justin Yeoh Ker-Wei** and **Prof He Jianzhong**
- 3) **Innovative Teaching Award** - **Dr. Kuang Sze Chiang, Kevin**

Dr. Justin Yeoh Ker-Wei has won the **Annual Digital Education Award (ADEA) 2021**. The ADEA recognises achievements in developing innovative technology-enhanced teaching, including instruction, educational design, assessment and feedback, as well as wider adoption of good practices in these areas through leadership and support of other colleagues.

[\[go to Table of Contents\]](#)

Won NUS Safety & Health Award!

The Department of Civil and Environmental Engineering has received the **[NUS Safety and Health Award 2020 Commendation Award](#)**. We are proud of the work done by our colleagues in keeping our laboratories safe and well.

[\[go to Table of Contents\]](#)

Promotions

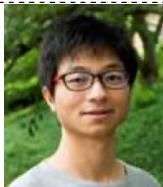
We wish to congratulate **Dr. Lefebvre Olivier Patrick** and **Dr. Ong Ghim Ping Raymond** who were promoted to Associate Professor with tenure retrospective effect from 1 Jan 2021. **Assoc Prof Vladan Babovic** and **Assoc Prof He Jianzhong** were promoted to Full Professor with retrospective effect from 1 Jan 2021 and 1 Jul 2021, respectively. **Dr. Justin Yeoh Ker-Wei** was promoted to Senior Lecturer in Jan 2021. Congratulations to our Professors.

Assoc Prof Bai Renbi has been appointed as an Honorary Fellow for a period of five years. The Department appreciates his significant academic and professional contributions to help us attain international reputation.

[\[go to Table of Contents\]](#)

Welcome New Colleagues and Farewell to Staff

We extend a warm welcome to 4 young aspiring faculty members who joined us as Assistant Professors, Dr He Xiaogang, Dr Li Yuzhu, Pearl, Dr Lei Jiarui, Gary and Presidential Young (Assistant) Professor, Dr. Prateek Bansal.



Dr. He Xiaogang, Assistant Professor joined the department in Nov 2020. He is a Princeton-trained Ph.D. Hydrologist with experience in economics, machine learning, and environmental policy. His research interests focus on the fundamental understanding of how climate change, variability, and human interventions affect drought and flood risk across scales, and how to implement an integrative framework (e.g., hydrological modeling, remote sensing, artificial intelligence, nexus approaches) to reduce their societal impact. Prior to joining NUS, he was a Water in the West Postdoc Fellow at Stanford University working on sustainable groundwater management. Xiaogang received his M.A. in Civil and Environmental Engineering from Princeton University in 2016; M.E. in Civil Engineering from the University of Tokyo in 2013; B. Eng. (Major, with honors) in Hydraulic Engineering, and B.Sc. (Dual) in School of Economics and Management from Tsinghua University, China, in 2011.



Dr. Li Yuzhu, Pearl, Assistant Professor joined us in Oct 2021. Prior to joining NUS, Dr. Li Yuzhu, Pearl was a Marie Skłodowska-Curie Fellow at the Technical University of Denmark (DTU). Her research focuses on many aspects of coastal engineering, including: fluid-structure-seabed interaction, scour, liquefaction, turbulence modelling and breaking waves, with particular focus on computational fluid dynamics (CFD) modelling and numerical investigation of coastal engineering problems.



Dr. Lei Jiarui, Gary, Assistant Professor joined CEE in Oct 2021. He was a postdoctoral associate working in the Environmental Fluid Mechanics Lab at Massachusetts Institute of Technology (MIT) before joining NUS. He was also an adjunct professor at the University of Massachusetts Lowell. His research interests focus on understanding how hydrodynamic may affect the plants' survival, growth, and ability to curb erosion. He also extends his research into seagrass/mangroves ecosystems, where he studies how carbon sequestration is linked to the local hydrodynamics.



Dr. Prateek Bansal, Presidential Young (Assistant) Professor Joined CEE in Dec 2021. Prateek Bansal obtained his Ph.D., Transportation Engineering (Minor: Statistics and Econometrics) from Cornell University, USA in 2016 after completing MS, Transportation Engineering (Minor: Statistical Modelling) at The University of Texas at Austin, USA. He completed BTech, Civil Engineering from Indian Institute of Technology (IIT), Delhi. Before joining NUS, he was a Leverhulme Trust Early Career Fellow at Imperial College London. Prateek is interested in creating methodological innovations at the intersection of Bayesian Machine Learning, Econometrics, and Computational Psychology to address challenging questions in travel/consumer behaviour modelling and traffic safety. He is interested in advancing the field of travel/consumer behaviour by calibrating the newly developed

models with the emerging experimental datasets collected using virtual reality, eye tracking, and EEG.

We bid farewell to our following colleagues: **Dr Elita Li, Dr Yuan Jing, Prof Lau Hon Chung, Prof Arthur Cheng** and **Prof Magee, Allan Ross** and **Assoc Prof Paul Chen JP**.

Our newly appointed Adjunct Professors include **Adjunct Assistant Prof Ng Hsiao Piau, Adjunct Assistant Prof Elita Li, Adjunct Assoc Prof Paul Chen Jiaping, Adjunct Assoc Prof Lim Mong Hoo** and **Adjunct Prof Lee Der Horng**. **Ms Sally Ng Xin Hui** has been appointed as an Executive in CEE office.

[\[go to Table of Contents\]](#)

Thanking our Donors

The Department would like to thank our donors for their valuable contributions towards supporting our education efforts.

- **Prof Choo Yoo Sang** and **Prof Michael Si** of Department of Civil & Environmental Engineering contributed to an expendable gift to establish **the Peter W. Marshall Medal & Prize** in National University of Singapore (NUS), with additional contribution from **Dr. Peter Marshall**. The Medal and Prize will be awarded annually to a **top student in M.Sc. Civil Engineering with specialization in Ocean Infrastructure and Renewables**. Dr. Marshall is a worldwide industry leader in the design and installation of offshore fixed and floating production facilities and an expert in materials selection, design of welded tubular connections, fracture mechanics and inspection methodologies.

In 2007 Dr. Marshall was appointed as Lloyd's Register Educational Trust Professor in NUS. From 2009 to 2014, he was a Visiting Professor in NUS and contributed significantly to M.Sc. Offshore Technology, and mentored undergraduate students in capstone design projects on offshore structures.

About Professor Peter W. Marshall

Professor Peter W. Marshall holds Bachelor and Master of Science degrees from the University of Florida, and a Ph.D. from Kumamoto University, Japan. In 1970 he was awarded the Alfred Noble Prize by ASCE for his paper, "Risk Factors for Offshore Platforms". This paper led to the beginning of a successful effort to properly relate the expected environmental forces to the actual platform resistance. Since then, Prof. Marshall became an internationally recognized expert in the areas of tubular joints and welding, and the selection of proper steel grades for offshore platforms and other large tubular structures in various environments.

By his technical competence and leadership within Shell Exploration & Production, USA, and in many industry committees and forums, Prof. Marshall contributed significantly to, in fact in many respects he pioneered and set the direction for, the successful design and installation of deepwater offshore fixed and floating production facilities in current use worldwide. Prof. Marshall is not only an early and long proponent of Reliability Based Structural Design for application to deepwater platform projects, he is also a worldwide industry leader in materials selection, welding technology, fracture mechanics and related inspection methodologies. The results

can be seen in many standards and codes that are now in common use by the industry, including American Welding Society, American Petroleum Institute Recommended Practices, API Specifications, International Standards Organization and the International Institute of Welding.

Upon retiring from Shell in 1993, after 32 years, Marshall became Chair Professor of Marine Design and Construction, University of Newcastle-upon-Tyne, England. At NUS, he worked closely with CEE and CORE colleagues and successfully launched and completed two Joint Industry Projects. He also contributed to the module development of the M.Sc. in Offshore Technology.

Prof. Marshall's development and design work for offshore structures earned numerous patents and world records. He received the OTC Distinguished Achievement Award for Individual in 2006. This is the highest honor for an individual bestowed by the industry. He was named to the Industry Pioneers Hall of Fame in 2014.

- **Er. Teh Hee Seang** made a gift of S\$50,000 to the department of civil and environmental engineering (CEE), funding an existing Lee Seng Lip Scholarship that helps the department to reach out to more deserving B. Eng. (Civil) students who had performed well academically. This scholarship will be able to help CEE to attract talented candidates to the programme.
- **Er. Chong Kee Sen & Er. Louis Hwang**, Engineers 9000, have donated S\$25,000 to CEE to establish the 'Engineers 9000 Prize' for the B. Eng. (Civil) Programme students. This award will be given out every academic year to the top 2 students with financial needs.
- **Mr. Charlie Tan Chun Chieh**, from the Civil Engineering Class of 1999, has donated \$10,000 to CEE to support the Steel Research and Teaching including sponsoring expenses organised by the Structural Steel and composite research group in NUS.

[\[go to Table of Contents\]](#)

New! Research Awards for outstanding Graduate students

The department has also established two new Research Awards for outstanding graduate research students. Congratulations to the 2021 recipients:

LEE SENG LIP MEDAL AND PRIZE – Dr Lai Binglin
YONGNAM MEDAL AND PRIZE – Dr Cao Wenjun

These awards are given to exceptional Ph.D. students, who have displayed the highest scholarly excellence in graduate work, across all divisions in their late years of their Ph.D. research work. They recognise outstanding performance and professional promise and represents high distinction from the National University of Singapore - Civil and Environmental Engineering discipline.

[\[go to Table of Contents\]](#)

Outstanding Engineering Young Alumni Award (OEYAA)

The Department is proud to announce the achievements of our Civil Engineering Alumni Er Kwa Chin Soon who won the OEYAA 2021 while Environmental Engineering Alumni Mr Tai Xu Hong won the OEYAA 2020. The Outstanding Engineering Young Alumni Award is conferred on young Engineering alumni who have distinguished themselves nationally or internationally through excellent and sustained contributions and achievements in public and community service, in a professional or scholarly field.

Er. Kwa Chin Soon, B. Eng (Civil Engineering) Class of 2010 serves as the Deputy Director of Land Transport Authority, in charge of the construction of part of the Circle Line MRT running through the challenging geology of the Central Business District. He has also actively contributed to the engineering community, publishing papers in reputable conferences in the field of geotechnical engineering. Outside of engineering, he has served in the Grassroots since 2007, and is currently the chairman of the Sengkang West Youth Network where he curates and organises events to create a vibrant youth community in Sengkang West.

Mr Tai Xu Hong, B. Eng (Environmental Engineering) Class of 2010 is Director & Co-founder of Momentus Research Pte Ltd and WOW Kampung Pte Ltd received his Outstanding Engineering Youth Alumni Award (OEYAA) 2020. With a strong conviction for entrepreneurship and technological pursuits, he started these two enterprises. Momentus Research Pte Ltd focuses on using humanised technology for behaviour change among corporates, while WOW Kampung Pte Ltd is a social enterprise that designs experiential learning for environmental and wellbeing education in Singapore and Dubai.

[Go to Table of Contents](#)

Department Appointments

Assoc Prof Darren Chian has been appointed as Director for Centre of Soft Ground Engineering with effect from 1 Nov 2021. The department thanked Prof Lee Fook Hou for his past contributions as Director for the Centre since 2015.

Assoc Prof Simone Fatichi is the new Hydraulics Lab Supervisor following the departure of Assistant Prof, Dr Yuan Jing.

Assoc Prof Ong Ghim Ping Raymond has been appointed as Associate Head (Research) in Mar 2021, assisting Assoc Prof Gin Yew-Hoong Karina, Dy Head (Research) while continue his role as the CEE Graduate Research Programme Manager.

Dr. Justin Yeoh Ker-Wei is appointed as Chief Communications Officer in Mar 2021 to oversee the outreach activities and communication besides his role as B.Tech Civil Engineering Coordinator. The "Special Projects" Team in the Department has been renamed as "Communication & Engagement" to better align with the department outreach programme.

[Go to Table of Contents](#)

Faculty Achievements: **Appointments**

Prof Balasubramanian, Rajasekhar has been elected a Fellow of the Royal Society of Chemistry, a professional society based in the United Kingdom with over 50,000 members worldwide, for his outstanding contributions to the field of chemical sciences. He is also a recipient of the long service medal (Ministry of Education) (National Day Award 2021). He has been appointed as Vice-President of the International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA). IUAPPA brings together scientists, policy-makers, regulators, business and citizen groups from many countries across the world to share scientific and technical information on air quality and climate change. The focus of IUAPPA is the development and implementation of effective policies for the prevention and control of air pollution, the protection of the environment and the adoption of sustainable development.

Assoc Prof Chian Siau Chen Darren was invited as Chair, National Technical Committee, Civil and Geotechnical Works, IES-Enterprise Singapore Accreditation Council. Invited as Member, Building and Construction Standards Committee (BCSC), Enterprise Singapore.

Adjunct Prof Choo Yoo Sang was invited as member of Technical Committee on Marine And Offshore from 1 Jan 2021 To 31 Dec 2023 in the Singapore Standardisation Programme led by the Singapore Standards Council (SSC) and overseen by Enterprise Singapore (ESG).

Asst Prof He Xiaogang has been appointed as the Visiting Advanced Joint Research (VAJRA) Faculty at IIT Kanpur. SERB (Science and Engineering Research Board) welcomes accomplished Overseas Scientists to take up challenging research problems in the Indian setting.

Prof Richard Liew has been elected as member of the Singapore Professional Engineers Board for a three-year term ending 31 December 2023. He chairs the Education and Examination Committees. The new Board will continue to build on the good work by previous leaders to raise the standard and profile of professional engineering practice in Singapore

Prof Liu Li-Fan, Philip, Distinguished Professor was appointed as an Honorary Chaired Professor at the National Taiwan Ocean University and he delivered a lecture in the "Blue Ocean" lecture series. The title of his lecture was "Generation and propagation of Tsunami-like bores and resulting inundation".

Prof Liu Li-Fan, Philip was appointed as the Distinguished Visiting Chair Professor at the Department of Hydraulic and Ocean Engineering at National Cheng Kung University, Taiwan from 1 Jul to 31 Dec 2021. He was also appointed as the Jade Mountain Scholar by the Ministry of Education, Taiwan, starting at 1 Oct 2021 for a duration of three years.

Prof Liu Li-Fan, Philip was appointed by the National Sun Yat-sen University (Taiwan) as the Honorary Chair Professor from 1 May 2020 to 30 Apr 2023. He has also been Appointed to be the member of academic advisory committee for the research Institute of Ocean Engineering in Ningbo University (China) from May 2020 to Apr 2023.

Prof Liu Li-Fan, Philip has been appointed as the Visiting Advanced Joint Research (VAJRA) Faculty at IIT Madras. The VAJRA scheme is sponsored by the Science and Engineering Research Board (SERB) of Department of Science and Technology (DST), India. The objective of the scheme is to tap on the expertise of overseas faculty / scientist.

Asst Prof Liu Yang was appointed as an Associate Editor of Socio-Economic Planning Sciences (from 2021 Jul, for three years). Socio-Economic Planning Sciences (Impact Factor: 4.92) is a scientific journal established in 1967 and is published by Elsevier.

Asst Prof Liu Yang has been appointed as an Associate Editor of Transportation Science.

Prof Yong Kwet Yew is appointed as Development Projects Advisory Panel (DPAP), Ministry of Finance. DPAP is expected to make an independent assessment of large and complex public infrastructure projects by examining the potential benefits, life cycle costs and mode of implementation, so as to achieve value-for-money. The professional evaluation and expert views of the DPAP will enable MOF to refine the project proposals before they are submitted to the Ministerial-level Development Planning Committee for approval.

Prof Yong Kwet Yew is Chairman-designate and Chairman (from 10 Feb 2022), Coastal Protection Expert Panel, Public Utilities Board (PUB). The Coastal Protection Expert Panel was formed by PUB to support its journey to develop strategies and implementation plans in response to climate change and sea-level rise, The Panel comprising international experts advises PUB in the areas of (a) Coastal & Inland Flood Modelling; (b) Flood Risk Assessment and Management; (c) Coastal Protection Planning & Engineering; and (d) Coastal Protection Policy and Legislation.

Prof Yong Kwet Yew has been appointed as Senior Fellow, URA Academy, Urban Redevelopment Authority (1 Nov 2021 – 31 Oct 2023). URA will tap on the knowledge and experience of its Senior Fellows in the URA Academy to build up URA's professional capabilities in planning and development to make Singapore a liveable and sustainable city. In this respect, his expertise in sustainable development, underground planning and development and coastal reclamation and protection will complement the expertise of the current Senior Fellows.

Awards and Recognitions

Prof Balasubramanian, Rajasekhar received the PROSE (Professional and Scholarly Excellence) Award in recognition of his contributions to the Global Environmental Outlook – GEO-6: "Healthy Planet, Healthy People", edited by United Nations Environment, Cambridge University Press. This award, presented by the Association of American Publishers, has recognized the GEO-6 team whose landmark work has made significant advancements in the field of Environmental Sciences.

Prof Chan Eng Soon received the National Day Award: Public Service Medal (2021). The award was given for his contributions in both as Chairperson, Workplace Safety and Health Council (Marine Industries) and Former Board Member, PUB, Singapore's National Water Agency.

Prof Arthur Cheng was awarded Honorary Membership by the Society of Exploration Geophysicists, the second highest honour in the society, for his scientific achievement and voluntary contribution to the society.

Asst Prof Chew Soon Hoe (PI), Dr. Koh Juan Wei (RF) and Mr. Aw You Jin Eugene (RE), Department of Civil and Environmental Engineering, together with HDB colleagues, have received the "2021 IES Prestigious Engineering Achievement Award"; for the project titled "Rapid Classification of Soil using Artificial Intelligence". The basis of the award are engineering achievements that demonstrate outstanding engineering skills which have made a significant contribution to the engineering progress and the quality of life in Singapore. The method is not

only able to improve productivity of operations, but also allow for more sustainable use of soils in a land-scarce Singapore.

Asst Prof Chew Soon Hoe's team has won the Public Sector Transformation (PST) Star Partner Award 2020. The nomination was made by Housing & Development Board for the excellent work done by the team in NUS on advancing innovation in land reclamation and two joint-study agreements with NUS on innovative means of optimising the reuse of excavated soft clay for land reclamation works. The Public Sector Transformation (PST) Awards is a Whole-of-Government pinnacle platform to recognise and reward public officers and public agencies for excellence in their work and organisational practices.

Assoc Prof Chian Siau Chen Darren (PI), Prof Leung Chun Fai (Co-PI), Dr Shen Zhichao (RF), Dr Hitesh Halai (RF) and Mr Nicolas Lee Lin Hao (RE) obtained the MOT Minister Innovation Award - Distinguished Award for their creation of Digitaland@Tuas, a digital twin of the Next Generation Tuas Port as part of their SMI funded research project. The award is based on the quality of the initiative, which demonstrated a level of innovation that contributed significantly to achieving the Ministry's mission and goals. These resulted in benefits to the public and industry and have proven to be cost and time effective.

Adjunct Prof Choo Yoo Sang was awarded the Lifetime Achievement Award in Marine and Offshore Engineering by The Joint Branch of The Royal Institution of Naval Architects and The Institute of Marine Engineering Science and Technology (Singapore). He is also appointed as the Co-Chairman of the Marine & Offshore Technical Committee for the period of 1 Jan 2021 to 31 Dec 2023 by Enterprise Singapore.

Dr He Xiaogang received the Young Scientist Best Paper award 2021- Outstanding Paper for "Climate -informed Hydrologic Modelling and policy topology to guide managed aquifer recharge" by International Association of Chinese Youth In Water Science. "The award is given annually to one of the top three prestigious papers in the field of water and climate sciences whose author is under the age of 35 years.

Asst Prof He Xiaogang received the 2020 Editors' Citation for Excellence Award on 20 May 2021 from AGU (American Geophysical Union), which is the world's largest community in Earth Sciences.

Prof Lau Hon Chung received the Top 25 Most Cited Articles Award by Energy & Fuels Journal for a paper entitled "Challenges and Opportunities of Coalbed Methane Development in China". He was nominated to be a Distinguished Lecturer of the Society of Petroleum Engineers for year 2021/2022 on the topic "The Role of Carbon Capture and Storage in the Energy Transition."

Assoc Prof Lefebvre Olivier Patrick was awarded the International Water Association (IWA) Fellowship in Sep 2020. IWA is the world's largest international professional association focused on water and covering the full water cycle from research to practice. The fellowship recognizes seniority, national and international leadership.

Prof Liu Li-Fan, Philip, Distinguished Professor was elected as one of the outstanding alumni from the National Taiwan University. The selection is based on "Liu was elected for his research achievement in Fluid Mechanics applied to Ocean Waves and his significant contributions to Ocean and Hydraulic Engineering

Prof Meng Qiang and his former Ph.D. student, Dr. Yadong Wang, was awarded the Freight Transportation and Logistics Outstanding Paper Award of INFORMS Transportation Science and

Logistics Society on 10 Nov 2020 for their article "Semi-liner shipping service design" which was published by one of top transportation research journals - Transportation Science in May 2020.

Prof Ng How Yong led his team from EnvironSens Pte Ltd, a NUS start-up company, to win the Prestigious Engineering Achievement Award 2020 by IES together with PUB Singapore in recognition of their outstanding engineering project, "Microbial Electrochemical Sensor (MES) for Detecting Heavy Metals and Cyanide Discharge in Used Water".

The **2022 Blue Ribbon Award (in the Diversity category)** from the Transportation Research Board of the National Academies (TRB) Technical Activities Council was awarded to the Board's Standing Committee on International Trade and Transportation. **Assoc Prof Ong Ghim Ping Raymond** is one of the 25 members in this committee (led by Dr Juan Villa from Texas Transportation Institute) which was recognized in the 101st Transportation Annual Board Annual Meeting at Washington DC in January 2022. This award recognizes the works by the standing committee on "Best practices in attracting and retaining members and friends from historically under-represented groups". The award is selected from the over 200 standing committees which TRB currently hosts.

Assoc Prof Ong Ghim Ping Raymond received the Singapore Accreditation Council (SAC), SAC Assessor Award (Distinguished) on 5 Nov 2020 for their contributions to the Council's accreditation programmes. The SAC is Singapore's national accreditation body managed by Enterprise Singapore (ESG) and maintains the integrity and impartiality of conformity assessment practices.

Assoc Prof Raymond Ong & Dr Ajayshankar Jagadeesh received the Best Paper Award in Methodological Development for the paper entitled "Skid Resistance Evaluation of Pervious Pavement Mixtures using XRCT-based Modelling" at the 14th Eastern Asia Society of Transportation Studies (EASTS) Conference held in Hiroshima, Japan (virtual event) from 12-14 Sep 2021.

Assoc Prof Qian Xudong received the Singapore Accreditation Council (SAC) Assessor Award (Gold) on 5 Nov 2020 for their contributions to the Council's accreditation programmes. The SAC is Singapore's national accreditation body managed by Enterprise Singapore (ESG) and maintains the integrity and impartiality of conformity assessment practices.

Assoc Prof Simone Fatichi was awarded the "Hydrologic Sciences Early Career Award" for the hydrology section by American Geophysical Union in Oct 2020 for his significant contributions to the Science of Hydrology through the understanding and modelling physical and ecosystem processes at the hydrology-biogeosciences-climate interface. The Hydrologic Sciences Early Career Award is presented annually and recognizes outstanding contributions to hydrology through research, education, or societal impacts.

Prof Tan Kiang Hwee and his former Ph.D. student, Dr. Akshay Venkateshwaran, have been awarded the Frederick Palmer Prize 2021 by the Institution of Civil Engineers (ICE), UK, for their paper on "Moment redistribution in continuous steel-fibre-reinforced concrete slabs". The prize is awarded annually to authors from both industry and academia who have produced work judged by their peers to be of exceptional quality and benefit to the civil engineering, construction and materials science community.

Prof Balasubramanian, Rajasekhar was featured in Asian Scientist 100 (AS100) list. Every year since 2016, Asian Scientist Magazine compiles a list of Asia's most outstanding researchers

and innovators across a range of academic disciplines (max 100). He was featured on Asian Scientist 100 list in 2017. His contributions to "Sustainability" are highlighted in the newly-released white paper, Five Years of The Asian Scientist 100 (2021). To be acknowledged on the list, honourees must have won a national or international prize in the past year, or have been recognized for their significant achievements in scientific research or leadership.

[\[go to Table of Contents\]](#)

Students and Research Staff Achievements

American Concrete Institute (Singapore Chapter) ACI (Singapore Student Chapter) Project Competition 2021 (Open Category)

Project Presentation was held on 4th Dec 2021

(<http://www.concrete.org.sg/competition.html>)

Our NUS Teams clinched the following awards:

Gold Award: "Co-treatment of incineration fly ash and marine clay"

Awardee **Wang Qiaorui** (exchange Ph.D. student) was supervised by Dr Geng Guoqing, Assistant Professor.

Silver Award: "Valorization Of Waste Marine Clays: Pathway Towards Engineering Applications"

The team comprised Dr. Anjaneya DIXIT (Research Fellow), Wang Dehao (MEng student), Wang Yue (M.Sc. Civil Engineering), 3 Civil Engineering students: Sean Chua Xin Wei, Lim Keng En John. The team was supervised by Assoc Prof Pang Sze Dai and Dr. Du Hongjian, Lecturer.

Bronze award: "PPVC-Large Panel System (LPS) Hybrid Lightweight Concrete (LWC) Construction for Healthcare and Institutional Building"

Awardee Wang Junxuan (M Eng Student) was supervised by Dr Kong Kian Hau, Senior Lecturer and Prof Liew Jat Yuen, Richard.

Merit award: "Novel Application of Artificial Intelligence Technology in Cement Industry" The awardee Yan Yu (Research Fellow) was supervised by Dr Geng Guoqing, Asst Prof.

Team of 4 Final Year Civil Engineering Students (**Mr. Tan Carlin, Mr. Lee Chang Howe, Ms. Chang Qingyang** and **Mr. Siow Ming En Isaac**) was awarded the first Prize (University Level category) at **JTC Virtual Case Challenge** (29 Mar 2021) organised by JTC Corporation. The JTC Virtual Case Challenge is a multidisciplinary ideas competition for students to brainstorm fresh ideas that allow JTC to strengthen our role as a master planner, developer and an industry partner of businesses and enterprises.

NUS Civil Engineering team comprising **Manikandan S/O Annamalai, Sean Chua Xin Wei, Hussain Fathah** and led by Dr. Du Hongjian, won the 1st Place Prize in the **Innovation in Public Transportation Competition 2021**, organized by APEC. The team was awarded for the entry titled "Sustainable Concrete Made from Solid Waste Glass".

Cai Yutong (Ph.D. candidate supervised by Prof Meng Qiang and Assoc Prof Raymond Ong) won the Best Student Paper Award in the **4th International Symposium on Multimodal Transport (ISMT 2021)**. This award is given to the 6 best student papers

out of the 69 papers presented by graduate students in the symposium held in Nanjing, China from 4-5 Dec 2021.

Dr. Cai Qinqing, Research Fellow, Sembcorp-NUS Corporate Laboratory received the Oral Presentation Award with a presentation titled "Catalytic ozonation based AOPs for reverse osmosis concentrate treatment" in **IWA Conference Water in Industry 2021**. She is a research fellow supervised by Prof Hu Jiangyong (PI) and Prof Ong Say Leong (Co-PI). The virtual conference held at Nanjing China was held from 23-25 Aug. 2021, This award is one of the four awards given in the conference for Young Water Professionals.

Dr Chen Zhihao, Research Fellow (NERI) supervised by Adjunct Assoc Prof Paul Chen Jiaping has received the **IChemE highly commended "Young Researcher Award" 2021**. His current work focuses on the mitigation of harmful algal blooms by developing innovative materials. He has successfully applied and developed several materials. He has also done lots of work on the redox conversion of toxic oxyanions. He has published 25 prestigious papers and applied for several patents. Two of his papers have been selected as the cover art. He is a reviewer of some esteemed journals. His Ph.D. thesis was listed as one of the top 100 Excellent Doctoral Dissertations of Jiangsu Province. Young Researcher Award recognises the chemical engineer who best demonstrates the impact of their chemical engineering research to address important technical, economic, environmental or social issues. All entrants must have been born on or after 1 Jan 1991. IChemE is Institution of Chemical Engineers, a global engineer institution that has more than 35,000 members.

Dr Lai Binglin, a Research Fellow supervised by Prof Richard Liew received the Gold Prize (1st prize) in the **American Concrete Institute-Singapore Chapter (ACI-SC) Annual Project Competition 2020**. His topic was "A novel and sustainable partially precast composite column using high strength and high ductility concrete materials". The study proposed a novel SRC composite column by employing advanced new materials and precast technology as an alternative for conventional cast-in-situ high strength SRC column, which overcome the inherent brittleness of high strength concrete and expedite the construction process.

Dr. Padmaja Krishnan, Research Fellow and Mr. Gilbert Sebastiano, Research Engineer supervised by Prof Richard Liew received the Silver Prize (2nd prize) in the **American Concrete Institute-Singapore Chapter (ACI-SC) Annual Project Competition 2020**. Their topic was "Novel lightweight cementitious materials for prefabricated prefinished volumetric construction (PPVC)". The study examined the possibility of using lightweight cementitious composites (LCC) and steel fibres to replace conventional reinforced concrete and facilitate increased productivity and time savings. The results indicate that adopting LCC can reduce the weight by 23% while the durability properties of LCC and normal weight concrete are comparable. Further, 1.0% steel fibres (by volume of normal weight concrete) was found to be sufficient to completely replace rebars and satisfy the serviceability and ultimate limit states in typical residential PPVC slabs.

Zhou Yu (Ph.D. student supervised by Prof Meng Qiang and Assoc Prof Raymond Ong) won the Award for Outstanding Presentation at the 2020 Annual Conference of the Next-Generation Transportation Systems (NGTS-2020) held at Purdue University (virtually) from 28-31 Dec 2020. The student-run annual conference on next-generation transport systems (NGTS-2) are funded by the US Department of Transportation Centre for Connected & Automated Transportation (CCAT) and sponsored by Purdue's Discovery Park and Celsus Corporation. Zhou Yu's presentation entitled "The road to electrification: the bus fleet

replacement problems” focused on providing strategies to replace conventional diesel engine bus fleet to full electric bus fleet and is critical to the move by Singapore towards phasing out petrol and diesel vehicles by 2040. This award is one of the 4 awards given in the conference.

[\[go to Table of Contents\]](#)

Student & Alumni Activities & Events

Event	Alumni panelist members
CE Alumni Host & Moderator: Dr Chew SH 12 Oct 2021	1) Mr Charlie Tan Chun Chieh , MD, Addcel Engineering 2) Er Chua Wee Koon , MD, D CONSULTANCY 3) Er Seah, Yeow Teck , General Manager (Singapore) at Keller Foundations (S E Asia) 4) Er Kwa Chin Soon , Deputy Director at Land Transport Authority, 2 Rail Expansion (Civil Team 1)
EVE alumni Host & Moderator: Prof Bala 6 Oct 2021	1) Mr Jason Tan , Graduate Water Engineer, Mott MacDonald 2) Mr Shaphat Lew Jinzen , Sustainability Product Stewardship at HP 3) Mr Chong Yi Hao Sustainable Financing & Responsible Investment, DBS
CE Alumni Host & Moderator: Dr Chew SH 26 Oct 2020	1) Ms Fam Xiao V (Vivian) , Snr Executive Engineer, Prostruct Consulting 2) Ms Tan Si En Danette , Senior Engineer, HDB 3) Mr Marvin Gowinatra , Senior Engineer, DP Engineers Pte Ltd 4) Mr Tan Wen Quan , Engineer, Surbana Jurong 5) Ms Nurulhuda Mustafar , Project Engineer, LTA 6) Mr Mohammed Iskandar B Ishak , Engineer, LTA
Kent Ridge Alumni Family Day 2020 - Virtual Engineering Booth 15 Aug 2020	The speakers representing CEE included Civil Engineering Alumni Er Tan Seng Chuan Chairman 2020 - and Managing Director, TEMBUSU Asia and Prof Bala. Er Tan spoke about “The Opportunity of Low-Carbon Economy” while Prof Bala shared on the research work of five faculty members on “Smart technologies and solutions for a sustainable future in the built environment”, covering research areas by Prof Richard Liew, Prof David Chua, Dr Kevin Kuang, Dr Elita Li and Prof Bala. Each speaker was allocated 15 minutes.

Seminars/Webinars via Zoom

S/N	Date	Our Alumni	Topic
1.	18 Dec 2021	Mr Vincent Loka Entrepreneur & Co founder Wateroam Mr. Kenneth Tay, Sustainability Manager, UOB Asset Management	When Business Respects Nature Host: Assoc Prof Lefebvre Olivier Patrick
2.	7 Aug 2021	Mr Huang Hongdou Nova Growth Leader, Asia Pacific Baker Huges	The path to a sustainable tomorrow Host: Assoc Prof Lefebvre Olivier Patrick
3.	9 Jul 2021	Er. Tan Seng Chuan Chairman & Managing Director TEMBUSU Asia Consulting Pte Ltd	Climate Change – An opportunity for Engineers Host: Prof Philip Liu
4.	11 Jun 2021	Er Vashdev A Khialani Former Civil Engineer HDB, Section Head, Civil/Structural Engineering in Matthew Hall Engineering Pte Ltd Principal Founder of C & V Engineering Pte Ltd	Conscientious Engineering Consultancy Service Host: Prof Quek Ser Tong

5.	21 May 2021	Mr Thia Lee Yong Former Deputy Director, Housing Development Board	HDB Through Technical Lenses. Host: Prof David Chua
6.	16 Apr 2021	Mr. Yap Kheng Guan Former Senior Director at PUB Singapore National Water Agency	Singapore Water Story Moderator: Prof Hu Jiangyong
7.	23 Feb 2021	Ms Emily Tan, Managing Director Traffic Consultant, TSM Consultancy.	Win-Win Solutions in Transportation Planning Host: Dr Liu Yang
8.	19 Nov 2020		Webinar for the 25th Singapore Symposium on Pavement Technology co-organized by CEE Department, Centre for Transportation and other overseas entities.
9.	25 Sep 2020	Honorary Fellow Dr Harry Tan	Woh Hup Distinguished Lectures “Numerical Modelling in Geotechnical Practice (Virtual Dream becoming Reality)” Host: Prof Quek ST
10.	11 Sep 2020	Dr Pang Chee Meng Chief Engineering & Technology Officer, Technology Department, PUB, the National Water Agency Singapore	“Cope with Future Challenges – Leveraging on R&D”, organized by Centre for Water Research (CWR), Seminar - Environmental Protection & Sustainability Research Cluster, NUS. Host: Prof Hu Jiangyong
11.	5 Aug 2020	LS 2 Services Pte Ltd, ISS, Zerowaste Asia Pte Ltd, Metalo International Pte Ltd, Aardwolf Pestkare Pte Ltd, Bayer (South East Asia) Pte Ltd.	ESplore Career Webinar arranged by NUS and NEA Host: Prof Hu Jiangyong

Brown Bag Series with IES-ISTructE Joint Committee

	Date	Name of alumni	Topic
1	1 Jul 2021	Mr Sherman Li Project Manager, Woh Hup	Construction of Funan Underground Pedestrian Linkway Hosted by Prof Pang Sze Dai
2	27 Aug 2021	Er Kang Jianhan, Director, KCL Consultants, M.Sc. CE 2002	Inspirational Engineering Career
3	21 & 22 Sep 2021	1) Dr Jenyuk Lohwacharin, Chulalongkorn University (Thailand) 2) Dr Juhee Kim, Georgia Institute of Technology (US) 3) Dr Law Cheuk Fung Japhet, Hong Kong Baptist University (Hong Kong) 4) Dr Roziana binti Kamaludin, Universiti Teknologi Malaysia (Malaysia)	IWA ACHSW / EESS / CWR Workshop on Emerging Contaminants in Water by 4 Distinguished speakers. Moderated by Dr Lim Fang Yee Closing by Prof Hu Jiangyong
4	8 Oct 2021	1) Mr Will Arnold, Head of Climate Action, the Institution of Structural Engineers, UK 2) Ms Chan Yun Ching, Principal Manager, BCA 3) Er Joe Lam, Assoc Principal/Bldg Struct, ARUP	Evening Talk on Climate Change and Carbon Footprint Reduction in Structural Engineering By 3 Distinguished speakers. Moderated by Assoc Prof Pang Sze Dai
5	29 Oct 2021	Dr Yu Chaoming, Associate Director in Structures at Cundall Singapore	Brown Bag session on Advancing Net Zero

[\[go to Table of Contents\]](#)

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[\[go to Table of Contents\]](#)