Civil Engineering
Volume 174 Issue 2 May 2021
https://doi.org/10.1680/jcien.2021.174.2.50

Editorial
Shanmuganathan

ice Publishing

Editorial

Sulo Shanmuganathan PhD, CEng, CPEng(NZ), CPEng(AU), FICE, FIStructE, FEngNZ, FIEAust
Holmes Consulting LP, Auckland, New Zealand

Welcome to the May 2021 issue of the Institution of Civil Engineers' flagship journal *Civil Engineering*.

Civil engineers have always pushed the boundaries for creating better lives, not least during the present Covid-19 pandemic. But where there has been no precedent to rely or improve on, the profession has long turned to physical models to test ideas and solutions. Our first paper, by Addis (2021), focuses on the past and present use of reduced-scale physical models in civil and structural engineering design. The paper starts by taking us through the history of so-called 'measurement models' from the 1750s to 1970s. It then presents examples of present-day physical models and explains how they can provide a valuable complement to contemporary digital modelling.

The much-hyped hyperloop transportation system, initially proposed by Elon Musk of Tesla and SpaceX in 2012, has gained a lot of traction in the civil engineering community as a way of increasing the speed of ground transport (e.g. Anyszewski and Toczycka, 2017). Magnetically levitated vehicles in low-pressure tubes and tunnels could theoretically operate at speeds of around 1200 km/h. Our next paper, by Grose (2021), reports on the outcomes of a year-long study by the British Tunneling Society into ways of increasing productivity and reducing costs of tunnelling to help make hyperloop a reality.

Bridge engineering is my livelihood, so I am always excited to learn about good design and construction of a ground-breaking bridge. The paper by Yu and Chen (2021) on the Tahya Misr cable-stayed bridge across the Nile in Cairo is a great example, highlighting the unique design features and special construction techniques adopted on this record-breaking structure. On successful completion in 2019, it was the world's widest cable-stayed bridge, with a deck width of 67.3 m.

Last but not least, Covid-19 continues to test us all and civil engineers worldwide have risen to the challenge of delivering and maintaining essential infrastructure throughout the pandemic (e.g. Shaw, 2020; Zhou *et al*., 2021). In this issue, Zhang *et al.* (2021) describe the task of delivering a quarantine facility in Hong Kong with 352 rooms across two sites in just 55 days. They explain how modular construction and smart technologies contributed to the rapid delivery, including real-time logistics monitoring, artificial-intelligence-based module detection and installation monitoring, and aerial drones for checking site progress and safety. The project was completed 15% ahead of schedule and significantly reduced material wastage compared to in situ construction.

Each one of us has no doubt faced similar challenges in the past 18 months – and come up with a myriad of ways of solving the issues. I would therefore like to invite readers to contribute to a planned special issue of this journal on how the pandemic has reshaped the infrastructure sector. Please visit www.icevirtuallibrary.com/page/ice-news/cfp-civil-engineering-03-2021 for more details. It is only by sharing our experiences and ideas that we can move forward as profession and build a more resilient and sustainable future.

I do hope that, like me, you find the papers in this issue interesting and stimulating, helping you to further your own knowledge. I would like to express my sincere gratitude to all the authors who contributed to this issue. Let us hope that we civil engineers continue to shape our world and communities with wisdom and compassion, lifting people's spirits and lives in these uncertain times.

References

Addis W (2021) Past, current and future use of physical models in civil engineering design. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **174(2)**: 61–70, https://doi.org/10.1680/jcien.20.00028.

Anyszewski A and Toczycka C (2017) Edinburgh's hyperloop team predicts a transport revolution. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **170(2)**: 51, https://doi.org/10.1680/jcien.2017.170.2.51.

Grose B (2021) The hyperloop challenge for tunnelling: higher productivity and lower costs. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **174(2)**: 71–78, https://doi.org/10.1680/jcien.20.00022.

Shaw N (2020) Maintaining critical infrastructure safety during the Covid-19 pandemic. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **173(4)**: 150, https://doi.org/10.1680/jcien.2020.173.4.150.

Yu XM and Chen DW (2021) Design and construction of the Tahya Misr cable-stayed bridge in Cairo, Egypt. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **174(2)**: 79–88, https://doi.org/10.1680/jcien.20.00014.

Zhang Z, Pan W and Zheng Z (2021) Fighting Covid-19 through fast delivery of a modular quarantine camp with smart construction. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **174(2)**: 89–96, https://doi.org/10.1680/jcien.20.00025.

Zhou M, Chen Y, Su X and An L (2021) Rapid construction and advanced technology for a Covid-19 field hospital in Wuhan, China. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **174(1)**: 29–34, https://doi.org/10.1680/jcien.20.00024.