

# Editorial

## Vikram Pakrashi

UCD Centre for Mechanics, Dynamical Systems and Risk Laboratory, School of Mechanical and Materials Engineering, University College Dublin, Ireland



*Infrastructure Asset Management* is going through exciting and challenging times. We are looking at a digitised future and new materials, methods and analyses are available more than ever. On the other hand, while this advancement of technology and computing has taken place, the fundamental challenges around understanding the management and demands from our infrastructure has not changed. Globally, infrastructure keeps ageing and no one has adequate resource to replace them. In many situations, the degradation of such infrastructure elements and the demands from them has increased with age. Under such circumstances, understanding the core challenges of infrastructure asset management and its subsequent assimilation with sensors, data and testing is of particular importance.

A particularly positive development in this regard is the continued work by researchers in this area and the overall acceptance of this change and adaptation of the new methods, materials, techniques and computing. The Civil Engineering Research Ireland (CERI) bi-annual conferences, for example, have been witness to this consistent change over time.

This special issue attempts to capture this crossroads in infrastructure asset management by presenting a set of papers, representative of this modern direction of handling infrastructure asset management, while remaining aware of the real needs of our ageing infrastructure throughout the world.

Walls *et al.* (2021) present hydrophobic coatings for composite materials in seawater (pressurised and non-pressurised) to address the potential lifetime needs for tidal turbines in corrosive marine environment. Composite materials continue to remain a material whose lifetime properties, especially around degradation, require significant research in the coming decades.

O'Higgins *et al.* (2021) present the challenges of uncertainties that are of significance when dealing with sensor data to assess built infrastructure. Their work highlights the problem of uncertainties and the impact of measured data and calls for better understanding

and interpretations of them, along with robust methods to reduce such uncertainties.

The rise of computational fluid dynamics and the modern needs of infrastructure management are reflected in the paper by Bernardo *et al.* (2021) where the problems from helicopter downwash is taken up. The work also highlights the relevance of open-source software in these computational aspects.

Burkhalter and Adey (2021) present a method of quantifying the net benefit from asset management options adopted. Models like these will become increasingly relevant as a digitised approach becomes a norm, rather than an exception.

Finally, Hay *et al.* (2021) provide an insightful commentary into the integration of such changes into the development of an asset management engineer in future.

Cognizant of this digital future, the issue ends with a book review by Thurlow (2021), which discusses the relevance and rise of computer vision in structural health monitoring. The forthcoming issues of this journal are expected to capture this route towards digitisation from a range of aspects and its impact on infrastructure asset management.

## REFERENCES

- Bernardo P, Mac Réamoinn R, Young P *et al.* (2021) Investigation of the helicopter downwash effect on pedestrian comfort using CFD. *Infrastructure Asset Management* 8(3): 133–140, <https://doi.org/10.1680/jinam.19.00060>.
- Burkhalter M and Adey BT (2021) Quantifying net benefits of intervention programmes to enable their digitalised generation. *Infrastructure Asset Management* 8(3): 141–154, <https://doi.org/10.1680/jinam.20.00020>.
- Hay AH, Karney BW and Gollish S (2021) Developing the next generation of infrastructure engineers. *Infrastructure Asset Management* 8(3): 155–163, <https://doi.org/10.1680/jinam.19.00065>.
- O'Higgins C, Hester D, Ao WK, McGetrick P and Robinson D (2021) Inherent uncertainty in the extraction of frequencies from time-domain signals. *Infrastructure Asset Management* 8(3): 121–132, <https://doi.org/10.1680/jinam.19.00058>.

---

Thurlow PG (2021) Book review: Computer Vision for Structural Dynamics and Health Monitoring – by Dongming Feng and Maria Q. Feng. *Infrastructure Asset Management* **8(3)**: 164, <https://doi.org/10.1680/jinam.21.00007>.

Walls M, O'Connor H, Dowling DP and Goggins J (2021) Testing of hydrophobically coated composite materials with marine energy applications. *Infrastructure Asset Management* **8(3)**: 110–120, <https://doi.org/10.1680/jinam.19.00053>.