Special Issue on Spatial Information and Digital Twins for Built Environment Development: Part 3

Preface

The concept of digital twins, although still in its early stages of development, is transforming a wide range of fields by offering real-time, spatially grounded representations of physical systems. At the core of this technology is the dynamic integration of spatial coordinates with descriptive properties, enabling synchronised, location-aware digital reflections of the real world.

In recent years, digital twin technologies have evolved from static digital replicas into intelligent systems capable of capturing, analysing, and forecasting behaviours of complex environments. This transition has been significantly propelled by advancements in spatial analysis, sensor integration, and large-scale data processing. One of the most promising outcomes of these developments is the emergence of new insights derived from spatial correlations–patterns that were previously hidden but are now discoverable through geospatially enriched analytics.

This special issue brings together ten peer-reviewed papers that represent the cutting edge of research and innovation in the realm of digital twins. The collected works span multiple domains, reflecting interdisciplinary approaches to spatial modelling, real-time data assimilation, and decision support systems. Collectively, they emphasise the growing importance and applicability of digital twin frameworks in solving contemporary engineering, urban, and environmental challenges.

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