

## Tentative Outline

### Special Thematic Issue for The Open Construction & Building Technology Journal

**Title of the Thematic Issue:** “*Challenges of emergent technologies – from BIM, IoT, data sensing, AI, MR, to modularized construction, are these the keys to the unpredictable human society?*”

**Guest Editors:** Stephen Siuyu LAU and Weifeng LI

• **Scope of the Thematic Issue:**

A surge of technology-enabled knowledge has unfolded a new horizon for those designers in pursuit of amiable habitable environments for human activities in the recent years. Whether or not such knowledge is a countermeasure for the non-conciliating revelation of Anthropocene as the root to the present planetary destruction, as they have provided new directions for the future of architecture amid the plague of threats, one after another causing destruction of cities, life and environment, for example pandemic, severe weather due to climate change, ageing and other kinds of conflicts.

Notably, the advancement of data driven decision making and management protocols based on information technology has portrayed a grand new blueprint and work platform for facilitating and managing human activities, such as big data techniques, cloud computing, and sensing techniques have paved the way both for back-casting and forecasting of the future. The question presented here is that how designers could enhance their understanding of the ways buildings are designed and operated given the big data and allied applications. For instance, the capability to mimic and synchronize the human movements and behaviors (built upon for e.g. the concept of Average Daily Living ADL) has enabled IT designers to reinvent a new generation of tools even for the aged, or anyone dancing or exercising on a PlayStation. The next question is whether the rest of the world is keen to steer our society and lifestyle towards technological means i.e. through artificial intelligence, robotics and intelligent control of our daily living be it indoor, outdoor or even on the road. Another question the arises is the evolutionary chain of changes in the process of teaching and practicing the architectural design in terms of ideas and then materializing that idea in architecture and building. The editors request a critical examination of the prospect of architecture in view of the current wave of new tools such as Building Information Model BIM, robotics, visualization capabilities (AR-VR-MR), artificial intelligence for both design and construction, building operation. Last but not least, a question may be emerged to be asked to the architect or the designer, is how much they are prepared for the world dominated and crafted by technology?

**Keywords:** Big data, sensing, artificial intelligence, BIM, visualization, Prefabrication, MiC, design research

#### Sub-topics:

The sub-topics to be covered within the issue should be provided:

- The roles of smart technologies e.g. IoT, data acquisition, sensing and analytics in urban redevelopment;
- The potentials of visualization technologies in architectural and urban design;
- Empirical versus laboratory experiments for the investigation of human subjective responses
- The challenges of data acquisition and management as far as human ethics and privacy is concerned
- Designing with twin reality – the parallax of digital design.
- Probing the potentials of modularized design and construction.

#### Schedule:

- ✧ Thematic issue submission deadline: **31st December 2023**

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