Session ID: SHM-7

Title
TOWARDS A NEW VISION OF CIVIL ENGINEERING: DIGITAL INNOVATION IN STRUCTURAL HEALTH MANAGEMENT

Convenors
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Description
Structural engineering applications are based on the use of conventional approaches that, although robust and well-established, are poorly automated and become high resource-intensive for analysts particularly when data merging is request.

Such approaches are inadequate with respect to the current needs of natural and built environment management institutions, which need to save time while assessing the structural safety of the architectural heritage in territorial scale and reducing the risk associated with human-induced and natural hazards, such as earthquakes.

The digital innovation is then contaminating the conventional practices typical of civil engineering fields, by proposing new techniques to monitor and automatize the life-cycle processes of structures and infrastructures. Hence, the current goal of the research community is to develop robust and practical approaches in which the digital innovation supports structural assessment increasing the efficiency of procedures for structural safety monitoring and risk control of heritage constructions, while maintaining an appropriate degree of reliability.

This session aims to spur the exchange of ideas and experiences on advances and developments of novel approaches based on the digital transformation and the automation for contaminating conventional procedures of structural risk mitigation and health condition monitoring of the built heritage.

Expected contributions should be focused on the adoption of methodologies based on novel digital techniques, (e.g., automation, artificial intelligence, data fusion, deep-learning, IoT, machine and representation learning, metamodeling, soft computing), applied to traditional and innovative data and approaches; the methodologies should be aimed at optimizing the use of computing and analysis resources for efficient safety management and health state assessment of the diffused architectural heritage, both historical and modern and the existing engineering infrastructural stock.

Invited Speakers
R. Gentile [3], V. Diana [4], M. Calò [1], I. Onescu [5]

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