

Digital Twin for Structural Health Monitoring of Transportation Infrastructures

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Abstract: Infrastructure plays a particularly important role in the socio-economic development of a country, driving the development. The damage of these structures not only affected to economic, but more importantly, it causes negative safety to people. This work concerns the exploration and development of Structural Health Monitoring (SHM) tool that enable damage detection of transportation infrastructure by utilizing the digital twin concept. Digital twin integrates multi-physics and models with SHM data to update and change as their physical counterpart's change, where machine learning algorithms are essential to learn the structural behavior from data. Experimental results show that the benefits of digital twin in SHM is increased reliability, forecasting serious problems and reduced potential risk of lifeline infrastructures.

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