



Ground Condition Prediction by Attached Sensors on Scaffolding with FNO Method

Shiuancheng Pai

[Background]

Scaffolding is an essential temporary structure in construction, maintenance, and industrial applications. However, scaffolding failures due to overloading, improper assembly, environmental factors, and structural fatigue pose significant safety risks, often leading to accidents and fatalities. Therefore, implementing SHM for scaffolding and further utilizing its structural response to predict ground conditions will be key to developing an effective risk assessment method.

[Objective]

This study analyzes structural responses under ambient vibrations and applies FNO to train data for ground condition prediction, enhancing scaffold stability assessment and risk evaluation.

[Approach]

- Analyze and adjust the raw data of scaffolding experiment
- Integrate the results and use them as training data for the program.
- Utilize FNO method and incorporate ground condition data from the experiment, using the trained data to predict ground conditions

[Publication plan]] •2025 JSCE Annual Conference

