

FNO for vehicle bridge interaction system and damage prediction

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目的: Propose Fourier Neural Operator (FNO) for vehicle bridge interaction (VBI) system and damage prediction of bridges without training data about damaged state.

内容: Train and test FNO by numerical data; Fine-tune by experimental healthy data; Validate by experimental damage data.

結果: Forward FNO for structural simulation was more accurate and faster than FEA; Inverse FNO successfully predict damage in bridges.

利用した計算機
SQUID 汎用CPUノード群
(1000 SQUIDポイント)

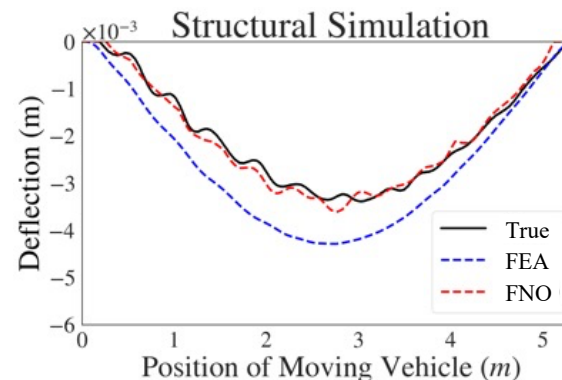


Figure 1. Forward FNO for predicting bridge deflection under a moving vehicle.

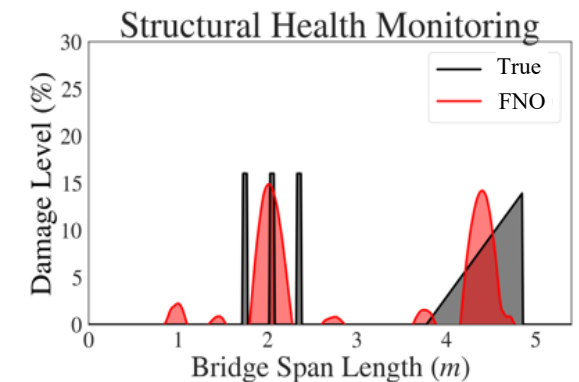


Figure 2. Inverse FNO for predicting bridge deflection under a moving vehicle.