

Estimating Impulse Response From Seismological Data

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Abstract

In construction of large buildings, impulse response and resonance frequency are considered so that building designs can be resilient to local seismological threats. This technology provides a method by which to estimate the impulse response of a geographic area based on seismological measurements gathered through geophones. In other estimation models, the excitation signal must be known. However, this model does not require the excitation signal statistics for calculation of impulse response.

Problem

Seismological data for a geographic region can easily be gathered using geophones, but without excitation signal information, these data cannot easily be analyzed for impulse response estimation.

Solution

USU researcher Todd Moon has developed a method by which to estimate the impulse response of a geographic area without using the excitation signal input data.

Value Proposition

Because the estimation method does not consider excitation signal input, interference from other excitations in proximity is mitigated, paving the way for a more accurate and easier estimation of impulse response.

Benefit

Seismological data for a geographic region can easily be gathered using geophones, but without excitation signal information, these data cannot easily be analyzed for impulse response estimation.

USU Researcher Todd Moon has developed a method by which to estimate the impulse response of a geographic area without using the excitation signal input data.

Because the estimation method does not consider excitation signal input, interference from other excitations in proximity (cars, people walking nearby, waves on a nearby beach) is mitigated, paving the way for a more accurate and easier estimation of impulse response.

Market Application

This technology applies directly to the construction sector, civil engineering firms in particular.

Inventors

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