**ARTICIFICIAL NEURAL-NET BASED HYSTERESIS IDENTIFICATION**

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**ABSTRACT**

Hysteresis is ubiquitous in numerous scientific and engineering fields. The models consisting of a nonlinear scalar differential equation with a small number of parameters were utilized to characterize hysteretic behavior. An advantage of differential equations is that they simplify many issues by localizing the interactions inside a system. Differential equations have the disadvantage of not being able to describe all of their solutions in terms of basic functions, and understanding them may require a large deal of complicated analysis. As the expansion of material and building technology involves the development of new types of components and joints as well as models, it is projected that the design of a model in the form of differential equations would be plagued with several obstacles. Our research aims to provide a method for constructing a neural network-based hysteresis model applicable to dynamic analysis generated from pseudo-static experiments. To do this, the results of the pseudo-static experiment are utilized to design an architecture that gene-ates output from input.

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