Suggestion of the ANN-based Reverse Engineering for Estimating Design Information of Power Tunnels

Seongbin Ryu[1] Seongi Min[2] Nakhyun Chun[3] and *Seungjun Kim[4]

[1), 2), 4)] *School of Civil, Environmental and Civil Engineering, Korea University, Seoul, Korea*
[3] *Next Generation Transmission & Substation Lab., KEPCO Research Institute, Daejeon, Korea*
[4] *rocksmell@korea.ac.kr*

ABSTRACT

For the infrastructures constructed several decades ago, there are many cases of loss or omission of design information. But the design information is necessary to facilitate follow-up management, particularly in evaluating the structural condition of aging structures. Thus, we propose an algorithm that can estimate the missed design information of power tunnels using an artificial neural network. It is possible to construct a neural network that recognizes the correlation between structural design conditions and design parameters by generating a database from the gathered design information and using it as learning data. Therefore, the constructed neural network algorithm can quickly estimate missed design information.

In this study, an artificial neural network algorithm for estimating missed design information was proposed, and the effectiveness of the proposed method was demonstrated by utilizing secured design data.

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[1] Ph.D. Student
[2] Graduate Student
[3] Senior Researcher
[4] Associate Professor