

Shear Strength Evaluation of Ultra-High-Performance Concrete Flexural Members Using Adaptive Neuro-Fuzzy System

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Abstract : For safe design of the UHPC flexural members, accurate estimations of their shear strengths are very important. However, since the shear strengths are significantly affected by various factors such as tensile strength of concrete, shear span to depth ratio, volume ratio of steel fiber, and steel fiber factor, the accurate estimations of their shear strengths are very challenging. In this study, therefore, the Adaptive Neuro-Fuzzy System (ANFIS), which has been widely used to solve many complex problems in engineering fields, was introduced to estimate the shear strengths of UHPC flexural members. A total of 32 experimental results has been collected from previous studies for training of the ANFIS algorithm, and the well-trained ANFIS algorithm provided good estimations on the shear strengths of the UHPC test specimens. Acknowledgement: This research was supported by Basic Science Research Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Science, ICT & Future Planning(NRF-2016R1A2B2010277).

Keywords : ultra-high-performance concrete, ANFIS, shear strength, flexural member

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