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A Study on Performance Prediction in Early Design Stage of Apartment Housing Using Machine Learning

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Abstract : As the development of information and communication technology, the convergence of machine learning of the ICT area and design is attempted. In this way, it is possible to grasp the correlation between various design elements, which was difficult to grasp, and to reflect this in the design result. In architecture, there is an attempt to predict the performance, which is difficult to grasp in the past, by finding the correlation among multiple factors mainly through machine learning. In architectural design area, some attempts to predict the performance affected by various factors have been tried. With machine learning, it is possible to quickly predict performance. The aim of this study is to propose a model that predicts performance according to the block arrangement of apartment housing through machine learning and the design alternative which satisfies the performance such as the daylight hours in the most similar form to the alternative proposed by the designer. Through this study, a designer can proceed with the design considering various design alternatives and accurate performances quickly from the early design stage.

Keywords : apartment housing, machine learning, multi-objective optimization, performance prediction
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