

Integrating NeuroFuzzy System with Conceptual Cost Estimation to Discover Cost-Related Knowledge from Residential Construction Projects

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Abstract

Cost estimation during early stage of a building construction project plays important role for feasibility analysis in the planning and design phase. Traditional knowledge-based approaches suffer in an essential difficulty due to resource price fluctuation in the market. This paper presents a hybrid method that integrates the Principal Items Ratio Estimation Method (PIREM) with the Adaptive Neuro Fuzzy Inference System (ANFIS) for mining of cost estimation data. The proposed method provides exceptional capability for mining estimation knowledge that is difficult to be discovered by traditional knowledge-based approaches. A case study of residential building projects in China is conducted to demonstrate the proposed method. The testing results show that the proposed method does not only achieve high estimation accuracy, but also provide desirable features for estimators, such as explicit fuzzy decision rules and graphical presentations.

Keyword : Construction cost estimation; data mining, knowledge discovery, neuro-fuzzy system; residential buildings; China construction industry