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Method of Cluster Based Cross-Domain Knowledge Acquisition for Biologically Inspired Design

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Abstract : Biologically inspired design inspires inventions and new technologies in the field of engineering by mimicking functions, principles, and structures in the biological domain. To deal with the obstacles of cross-domain knowledge acquisition in the existing biologically inspired design process, functional semantic clustering based on functional feature semantic correlation and environmental constraint clustering composition based on environmental characteristic constraining adaptability are proposed. A knowledge cell clustering algorithm and the corresponding prototype system is developed. Finally, the effectiveness of the method is verified by the visual prosthetic device design.

Keywords : knowledge clustering, knowledge acquisition, knowledge based engineering, knowledge cell, biologically inspired design
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