

Automated School Timetabling System Using Hopfield-Tank Neural Networks

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ABSTRACT

It always takes lots of manpowers and time to arrange the course timetabling in an university. Although there are many "automated" timetabling systems reported, users must intervene in processes often and the results produced by those systems are usually not good enough for practical applications. Thus, a novel timetabling system is proposed which is based on the well-known Hopfield-Tank neural networks. The factors related to timetabling are first simplified as two: teacher-subject and class-time. Following that, the information of courses in the next semester must be translated to embed into the adopted neural networks. In addition, the constraints about timetabling are expressed as energy and regulation functions so as to control the behaviors of neurons during the training stage. After training, the status of the neural networks can be easily interpreted as a course timetabling. In such a process, the The proposed system can be claimed as a successful demonstration of automatizing timetabling except some fuzzy constraints.

Keywords : 類神經網路 ; 自動化 ; 軟限制 ; 能量函數 ; 排課系統 ; 哈普費爾德-譚克網路

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