

AN ELECTRONIC TUTOR FOR GRAPHICAL PROBLEMS

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Abstract

For a variety of safety and economic reasons, engineering undergraduates in Australia have experienced diminishing access to the real hardware that is typically the embodiment of their theoretical studies. This trend will delay the development of practical competence, decrease the ability to model and design, and suppress motivation in all but the most imaginative students. A team of engineers has attempted to address this concern by creating a software tool that contains both photographic images of real machinery, and sets of modelling 'tools'. Academics can use the software to set tutorial tasks, and incorporate feedback comments for a range of student responses. An evaluation of the software demonstrated that students who had solved modelling problems with the aid of the electronic tutor performed significantly better in formal examinations with similar modelling tasks. The 2-D graphical diagnostic routines in the Tutor have the potential to be used in a wider range of problem-solving tasks, and a start has been made on a version of the Tutor to facilitate learning in the abstract topics of Descriptive Geometry.