

Editorial

Guest editor's introduction

In engineering there are many problems that do not fit into the conventional framework of algorithmic solution. Engineers are always making decisions that are based on their experience. They need to weigh up various pieces of information, consider the constraints that are influencing the current problem, and then decide on a particular action. This decision making process occurs in the design, construction, and maintenance of all kinds of engineering products in different areas of engineering.

The advances in Artificial Intelligence (AI) techniques, and more specifically knowledge based techniques, offer the possibility of building computer systems that automate, or assist an engineer with, some of the tasks that are not amenable to algorithmic solutions. Therefore, the surge of interest in the application of AI techniques to engineering problems in recent years did not come as a surprise. This is evident in the increasing number of conferences and journals dedicated to this area.

It is timely to review some of the activities and assess the progress made so far. In this issue, the reviews cover: *Construction Engineering and Management*, *Process Design Operation and Safety*, and *Power Engineering*. In the next issue the areas selected for reviewing are: *Aerospace*, *Control Engineering* and *Mechanical Engineering Design*. These articles survey representative projects and systems, and analyse current trends and future development. I believe they are important reading for researchers, practising engineers and technical managers.

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