

Automation of Engineering Design Aids Using Neural Networks

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ABSTRACT

Often in engineering design work, engineers refer to design aids such as look-up tables and graphical plots. In many cases, this information is obtained from experimental data for which no simple mathematical relationship is available. However, using such design aids is error-prone as well as almost impossible to smoothly integrate with other computerized applications.

Neural networks have been shown to be able to recognize patterns and have been applied towards projecting trends in data. This work will investigate the use of a neural network for generating accurate input-output relationships based on reference design aids. It will show how one can go from a hard copy of a design chart to network training to stand-alone software. A stress concentration design aid will be used as an example to demonstrate the procedure.