

Development of Expert System for Fabric Design

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A computer-based expert system of woven fabric design has been developed. For building the expert system of fabric design process three kinds of methods were adapted. Firstly a data base has been established for fabrics previously produced and subsequently used for the design of new fabrics based on the old parameters. The data base established will serve as a part of knowledge base for the design of the new fabrics. Secondly statistical analysis of parameters among yarns, fabric structures, process conditions and fabric qualities (hand, mechanical properties) has been performed. And the relations were used as rules of inference mechanism. Thirdly knowledge engineering process was performed. It is a process of acquiring experties of experts' in textile mills and building it into the knowledge base. By the method mentioned above this system serve as an expert system for fabric design and can predict fabric hand and mechanical properties of a fabric.

This CAD system also provides computer simulation of the fabric appearance for the fabric designer. The whole systems developed in this study can serve as a part of expert system for woven fabric design and manufacturing.