

Preface

The basic aim of this research monograph is to develop a unified approach to supervised pattern classification and model-based occluded object recognition. To perform this task we essentially consider soft computing tools, viz., fuzzy relational calculus (FRC), genetic algorithm (GA), and multilayer perceptron (MLP). The supervised approach to pattern classification and model-based approach to occluded object recognition are treated in one framework which is based on either conventional interpretation or new interpretation of multidimensional fuzzy implication (MFI) and a novel notion of fuzzy pattern vector (FPV). A completely independent design methodology has been developed on a unified framework which has been thoroughly tested on several synthetic and real life data. In the field of soft computing such application-oriented design study is unique in nature. The monograph essentially mimics the cognitive process of human decision making. It carries a message of *perceptual integrity in representational diversity*.

The monograph is very much useful to the researchers in the area of pattern classification and computer vision. It is useful for the academics as well as for the professional computer scientists of different research and development centers of industry. The monograph has a combined flavor of theory and practice.

The monograph is basically a collection of research contributions of Prof. Kumar S. Ray at Electronics and Communication Sciences Unit of Indian Statistical Institute, Kolkata.

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Kumar S. Ray



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A Unified Concept

Ray, K.S.

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