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The main topics the papers of the AMSE Symposium FSS'90 deal with are : mathematics of fuzzy systems, fuzzy modeling and fuzzy systems engineering.

The first paper deals with dynamic behaviour optimization in fuzzy digital PLL (Phase Locked Loops). Simulation results are presented and the optimal case proves better input noise rejection than those of previous reports.

A new algorithm for fuzzy adaptive control is the subject of the second paper. This new approach on developing adaptive fuzzy controllers is based on the maximization of a similarity measure between the controller output and the reference sequence of fuzzy sets , this point of view coming from fuzzy adaptive filtering theory. Computer simulations will clarify the best solutions and permit further comparisons with other methods.

Relations between fuzzy and crisp systems are analysed in the third paper . The equivalence between fuzzy systems (f.s.) and crisp systems (c.s.) is treated and also the problem of approximating c.s. with f.s. The main result is that any c.s. can be approximated by a f.s. with any kind of membership functions for the input and output. A general algorithm for developing the f.s. from the characteristic function of the c.s. is provided.

The fourth paper focuses on fuzzy regression. The classical definitions and different interpretations on regressions are

covered. The discussion comes to clarify the concept of fuzzy regression. Some aspects of foundations of imprecise modelling i.e. the choice of approximating function, the choice of the distance function, the existence of an optimal solution, its uniqueness, are pointed out and some open questions are also presented.

The sixth paper, "On the errors in fuzzy gates", analyses various sources of errors in basical bipolar and MOS fuzzy gates and presents the results of some measurements. Although a preliminary analysis, qualitative conclusions on technological aspects are obtained.

"Application of fuzzy logic in development of an expert system for security monitoring of electric power system" is the title of the next paper. The paper emphasises more on expert system characteristics than on fuzzy aspects.

The last paper refers to modelling imprecision of rules in expert systems for medical decision-making support. Special symbols of symptoms importance in a diagnosis and the membership functions related to the derived implications are presented. As a method of reasoning the generalised method of modus ponens is used, but, it is considered modus ponens is relevant to similarity of f.s. than to f.s which model an evidence. The method was verified in thyroidism diagnosis.

The papers join the fundamentals of fuzzy sets and applications. The volume can be read in one sitting, that meaning the ideas are attractive and clearly emphasized. It is recommended for the specialists as for the beginners.