

## Foreword

This volume offers an up-to-date panorama of research trends in flexible or preference queries, uncertain data management and related topics, using approaches based on fuzzy sets and possibility theory. It celebrates, at the occasion of his retirement, the efforts made by Patrick Bosc for developing this area for thirty years.

Patrick Bosc was the founder in the early 1980s, of the first and still the only French research group solely devoted to fuzzy databases, which has progressively gained an international recognition. Patrick, together with his group, has contributed to all the aspects of the use of fuzzy logic in databases: A great number of his contributions deal with flexible queries, and in particular the fuzzy extension of the SQL language, the problem of avoiding empty or plethoric answers, the handling of aggregates, or the processing of yes/no queries in face of uncertain data. He has also devoted many papers to the representation and the treatment of null values or of data pervaded with uncertainty, as well as the proper extension of relational algebra for coping with such data, with a special interest for generalized division. He has also extensively discussed fuzzy functional dependencies, fuzzy association rules, and fuzzy data summaries. With colleagues, he wrote two research monographs, served as an editor of the first collection of articles on fuzzy databases in 1995, and also prepared a textbook for teaching. That is to say that his research work was entirely dedicated to the advancement of the use of fuzzy logic and possibility theory in the database field.

Fuzzy set theory on the one hand and possibility theory on the other hand have sounded like promising tools for applications in databases for many years, and a number of interesting and convincing results have been obtained. Indeed fuzzy sets provide an easy way for expressing flexible constraints, and possibility theory offers a qualitative setting for representing uncertainty. In this latter framework, the lack of certainty in an event does not entail the certainty of the opposite event, as in probability, and partial ignorance can be adequately handled. However, while fuzzy logic has gained recognition in many theoretical and applied fields, it has unfortunately remained aside from the main research trends in databases, and those doing research in fuzzy databases have been often disregarded or regarded like weird people, in some database research circles. The fact that publication is now more governed by conventionalism and opportunities to publish than by genuine curiosity and desire of making progress in science, has still encouraged or even forced many researchers not to take the risk

of looking aside main avenues. It is why Patrick and his colleagues should be also complimented for having been hard-skinned enough for persevering with their research in spite of the lack of consideration they have been facing from time to time. I express the sincere hope, and ultimately I am confident that eventually a wider recognition should come. Maybe this book will also contribute to it.

Lastly, I would like to say that research is also a matter of meeting people. In that respect I was much fortunate to meet Patrick at an AFCET Informatique conference in Gif-sur-Yvette in November 1981. This has led to a fruitful and friendly collaboration over three decades and twenty papers. For that also, thank you Patrick.

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