

Preface

In this book, we answer the calls of the readers of our previous publications and systematically present the main advances in grey system theory and applications. By following our readers' feedback and suggestions, this volume introduces the most recent research results and updates on what is presented in our earlier books. In particular, the following content, which represents the authors' recent research, is highlighted in the book: general grey numbers and their operations, grey incidence models based on similarity and closeness, three-dimensional degree of grey incidence models, grey evaluation models based on centre-point mixed possibility functions, grey evaluation models based on endpoint mixed possibility functions, original difference grey model (ODGM), even difference grey model (EDGM), multi-attribute intelligent grey target decision models, weight vector group of kernel clustering, and the weighted coefficient vector of kernel clustering for decision-making. We also attach software designed for grey system modelling, which was developed by Bo Zeng using Visual C#, the widely employed C/S software tool. This user-friendly software allows users to conveniently input and/or upload data and clearly distinguish module functions. Also, the software has the ability to present users with operational details, as well as periodic and partial results. Additionally, users can adjust the levels of computational accuracy based on their practical needs.

During the writing of this book, we prioritized theoretical simplicity and clarity to make it easy for the reader to follow the main arguments made. With a good number of practical applications, we intended to illustrate the methodology of grey system theory and modelling techniques so that we could emphasize the practical applicability of grey system thinking. We drew on the most recent research developments from various research groups around the world, and tried to present the most complete picture of this new area of scientific endeavour in a concise manner.

The overall planning and organization of topics contained in this book were carried out by Sifeng Liu, who also authored Chaps. 1, 4, 6, and 10. Yingjie Yang produced Chaps. 2, 3, and 11, Jeffrey Forrest composed Chaps. 7 and 8, Naiming

Xie wrote Chap. 9, and Chap. 12 and the attached computer software were developed by Zeng Bo, Zhigeng Fang, Yaoguo Dang, Lirong Jian, and Chunhua Su and colleagues also worked with the authors to refine some of the book's content. Sifeng Liu was responsible for unifying the terms used throughout the book and for finalizing the manuscript.

Finally, we would like to encourage you to communicate with us and send us any comments you might have about this book. It is only by working together, as a team, that we can grow and mature as researchers. Sifeng Liu can be reached at sfliu@nuaa.edu.cn and sifeng.liu@dmu.ac.uk. Yingjie Yang can be reached at yyang@dmu.ac.uk and Jeffrey Forrest at jeffrey.forrest@sru.edu or jeffrey.forrest@iigss.net.

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