

Preface

Our journey towards this Festschrift started when realizing that our teacher, mentor, and friend Ursula Gather was going to celebrate her 60th birthday soon. As a researcher, lecturer, scientific advisor, board member, reviewer, editor, Ursula has had a wide impact on Statistics in Germany and within the international community. So we came up with the idea of following the good academic tradition of dedicating a Festschrift to her. We aimed at contributions from highly recognized fellow researchers, former students and project partners from various periods of Ursula's academic career, covering a wide variety of topics from her main research interests. We received very positive responses, and all contributors were very much delighted to express their gratitude and sympathy to Ursula in this way. And here we are today, presenting this interesting collection, divided into three main topics which are representatives of her research areas.

Starting from questions on outliers and extreme value theory, Ursula's research interests spread out to cover robust methods—from Ph.D. through habilitation up to leading her own scholars to this field, including us, robust and nonparametric methods for high-dimensional data and time series—particularly within the collaborative research center SFB 475 “Reduction of Complexity in Multivariate Data Structures”, up to investigating complex data structures—manifesting in projects in the research centers SFB 475 and SFB 823 “Statistical Modelling of Nonlinear Dynamic Processes”.

The three parts of this book are arranged according to these general topics. All contributions aim at providing an insight into the research field by easy-to-read introductions to the various themes. In the first part, contributions range from robust estimation of location and scatter, over breakdown points, outlier definition and identification, up to robustness for non-standard multivariate data structures. The second part covers regression scenarios as well as various aspects of time series analysis like change point detection and signal extraction, robust estimation, and outlier detection. Finally, the analysis of complex data structures is treated. Support vector machines, machine learning, and data mining show the link to ideas from information science. The (lack of) relation between correlation analysis and tail dependence or diversification effects in financial crisis is clarified. Measures of sta-

tistical evidence are introduced, complex data structures are uncovered by graphical models, a data mining approach on pharmacoepidemiological databases is analyzed and meta analysis in clinical trials has to deal with complex combination of separate studies.

We are grateful to the authors for their positive response and easy cooperation at the various steps of developing the book. Without all of you, this would not have been possible. We apologize to all colleagues we did not contact as our selection is of course strongly biased by our own experiences and memories. We hope that you enjoy reading this Festschrift nonetheless. Our special thanks go to Matthias Borowski at TU Dortmund University for supporting the genesis of this work with patient help in all questions of the editing process and his invaluable support in preparing the final document, and to Alice Blanck at Springer for encouraging us to go on this wonderful adventure and for helping us finishing it. Our biggest thanks of course go to Ursula, who introduced us to these fascinating research fields and the wonderful people who have contributed to this Festschrift. Without you, Ursula, none of this would have been possible!

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