Preface

This textbook is written for the readers who are interested in broad learning, especially in information fusion and knowledge discovery across multiple fused information sources. Broad learning is a general learning problem, which can be studied in various disciplines. Meanwhile, to illustrate the problem settings and the learning algorithms more clearly, this book uses the online social network as an example. To make the textbook self-contained, the book also provides an overview of necessary background knowledge for the readers. If it is the first time for the readers to read a textbook related to broad learning, machine learning, data mining, and social network mining, the readers will find this book to be very easy to follow.

Overview of the Book

There are 12 chapters in this textbook, which are divided into four main parts: Part I covers Chaps. 1–3, which introduce the overview of broad learning, machine learning, and social networks for the readers; Part II covers Chaps. 4–6, which include the existing social network alignment problems and algorithms; Part III covers Chaps. 7–11, which provide a comprehensive description about the recent social media mining problems across multiple information sources; Part IV covers Chap. 12, which indicates some potential future development of broad learning for the readers. Readers and instructors can use this textbook according to the guidance provided in Chap. 1.

Except Chap. 12, each chapter also has ten exercises for the readers. The exercise questions are divided into three levels: easy, medium, and hard, which are on the basic concepts, theorem proofs, algorithm details, as well as exercises on algorithm implementations. Some of the exercises can be used in the after-class homework, and some can be used as the course projects instead. The instructors can determine how to use the exercises according to their difficulty levels, as well as the needs of the courses.

Broad learning is a very large topic, and we cannot cover all the materials in this textbook. For the readers who want to further explore other related areas, at the end of each chapter, we provide a section about the bibliography notes. The readers can refer to the cited articles for more detailed information about the materials to your interests.

Acknowledgments

This book would not have been possible without many contributors whose names did not make it to the cover. We will mention them here according to the appearance order of their contributed works in this book. The active network alignment algorithm introduced in Sect. 6.4 is based on the collaborative work with Junxing Zhu (National University of Defense Technology) and the work with Yuxiang jwzhanggy@gmail.com
Ren (Florida State University). The large-scale network synergistic community detection algorithm introduced in Sect. 8.5 is based on the collaborative work with Songchang Jin (National University of Defense Technology). The information diffusion algorithm introduced in Sect. 9.4 and viral marketing algorithm introduced in Sect. 10.4 are based on the collaborative works with Qianyi Zhan (Jiangnan University).

This book has benefitted from the significant feedbacks from our students, friends, and colleagues. We would like to thank many people who help to read and review the book which greatly improve both the organization of the book and the detailed contents covered in the book. We would like to thank Lin Meng (Florida State University) for helping review Chaps. 3, 6, 7, and 11; Yuxiang Ren (Florida State University) for reviewing Chaps. 2, 4, 5, and 6; and Qianyi Zhan (Jiangnan University) for reviewing Chaps. 9 and 10.

Jiawei would like to thank his long-term collaborators, including (sorted according to their last names) Charu C. Aggarwal, Yi Chang, Jianhui Chen, Bowen Dong, Yanjie Fu, Lifang He, Qingbo Hu, Songchang Jin, Xiangnan Kong, Moyin Li, Taisong Li, Kunpeng Liu, Ye Liu, Yuanhua Lv, Guixiang Ma, Xiao Pan, Weixiang Shao, Chuan Shi, Weiwei Shi, Lichao Sun, Pengyang Wang, Sen-Zhang Wang, Yang Yang, Chenwei Zhang, Qianyi Zhan, Lei Zheng, Shi Zhi, Junxing Zhu, and Zhu-Hua Zhou. Jiawei also wants to thank his PhD advisor Philip S. Yu for his guidance during the early years as a researcher and the members of his IFM Lab (Information Fusion and Mining Laboratory). Finally, Jiawei would like to thank his respected parents, Yinhe Zhang and Zhulan Liu, for their selfless love and support. The book grabs so much time that should be spent in accompanying them.

Philip would like to thank his collaborators, including past and current members of his BDSC (Big Data and Social Computing) Lab at UIC.

Special thanks are due to Melissa Fearon and Caroline Flanagan at Springer Publishing Company who convinced us to go ahead with this project and were constantly supportive and patient in the face of recurring delays and missed deadlines. We thank Paul Drougas from Springer, our editor, for the help in improving the book considerably.

This book is partially supported by NSF through grants IIS-1763365 and IIS-1763325.

**Some Other Words**

Broad learning is a fast-growing research area, and few people can have a very deep understanding about all the detailed materials covered in this book. Although the authors have several years of exploration experiences about the frontier of this area, there may still exist some mistakes and typos in this book inevitably in writing. We are grateful if the readers can inform the authors about such mistakes they find when reading the book, which will help improve the book in the coming editions.

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November 11, 2018

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