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.

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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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