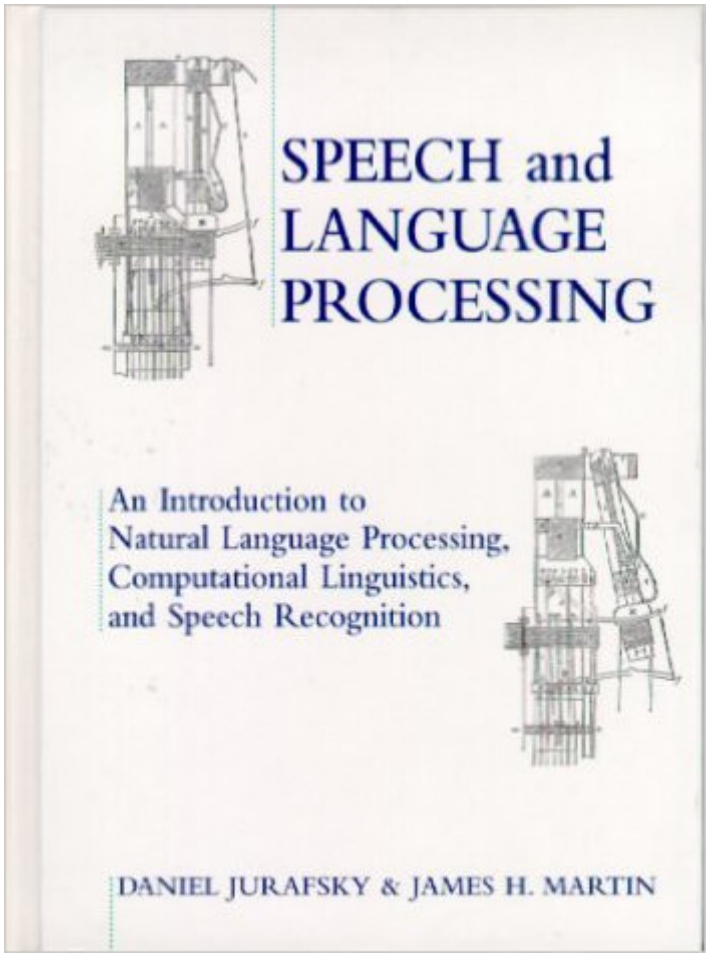
Speech And Language Processing: An Introduction To Natural Language Processing, Computational Linguistics And Speech Recognition



Synopsis

This book takes an empirical approach to language processing, based on applying statistical and other machine-learning algorithms to large corpora.Methodology boxes are included in each chapter. Each chapter is built around one or more worked examples to demonstrate the main idea of the chapter. Covers the fundamental algorithms of various fields, whether originally proposed for spoken or written language to demonstrate how the same algorithm can be used for speech recognition and word-sense disambiguation. Emphasis on web and other practical applications. Emphasis on scientific evaluation. Useful as a reference for professionals in any of the areas of speech and language processing.

Book Information

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Customer Reviews

The previous best book on NLP was James Allen’s (1995), which was considered ambitious at the time because it covered syntax, semantics and some pragmatics. But Martin and Jurafsky is far more ambitious, because it covers speech recognition as well, and has far expanded coverage of language generation and translation. It also covers the great advances in statistical techniques that have marked the last decade. It is a beautiful synthesis that will reward the experienced expert in the field with new insights and new connections in the form of historical notes that are not well known. And it is well-written and clear enough that even the beginning student can follow it through. Before this book, you would have had to read Allen’s book, Charniak’s short book on statistical NLP,

something on speech recognition, and something else on generation and translation. Like squeezing clowns into a circus car, Jurafsky and Martin somehow, improbably, manage to squeeze this all into one book, but in a way that is elegant and holds together perfectly; not at all the hodge-podge that one might expect. I expect that this book will be seen as one of the landmarks that pushes the field forward.It's worth comparing this book to the other recent NLP text: Manning and Shutze. Jurafsky and Martin cover much more ground, including many aspects that are ignored by Manning and Schutze. So if you want a general overview of natural language, if you want to know about the syntax of English, or the intricacies of dialog, if you are teaching or taking a general NLP course, then Jurafsky and Martin is the one for you. But if your needs are more focused on the algorithms for lower-level text processing with statistical techniques, or if you want to build a specific practical application, then Manning and Schutze is far more comprehensive and likely to have your answer. If you're a serious student or professional in NLP, you just have to have both.

This book is by now an accepted classic in the field. It is basically the only textbook that covers so much of computational linguistics, so I have had no choice but to use it for the past several years. Just the same, I'd rather not use it for teaching linguistics students. While the book has much to offer the professional, including a broad range of topics extensively researched, it is much more useful in this "handbook" capacity than as a textbook for the uninitiated. The chief reasons for this are: 1) It is pedagogically very poor; the majority of concepts are either explained in a confusing and obfuscatory manner or are not explained and are simply left in algorithmic form. This is not usually edifying to the linguistics student with no computer science background. 2) There are too many mistakes in its algorithms and method overviews. So far as I can see, even the famed Earley parsing algorithm is wrong here, it will not yield the correct output. 3) It is not written in a language that linguistics students can understand. With no background in mathematics, computer science, or pseudocode, such students need much more coddling than is provided by this book, and they are virtually unable to read it. Basically, as the title to this review states, what is called for now is a book to explain the contents of this book. Perhaps if my students keep encouraging me to write it. . .

This book is a great general introduction to NLP, covering a broad range of topics. Unfortunately there are many errors in the mathematical formulae and the algorithm descriptions, so do make sure to download the errata list from the book's home page.

GENERAL IDEA: Broad coverage, it lacks depth and details - particularly practical details. That is,

the presentation is often sketchy, mainly because it approaches too many subjects for its available space. I would not say that this book is strong on theory either. It is quite obvious that it avoids getting too formal and precise, probably to remain attractive for non-specialists too.CASE STUDY: One specific problem I had with the Hidden Markov Models, that are supperficially presented (or spread I could say) in several separate sections of the book, so it's not been a pleasure trying to actually understand them properly and completely as a fundamental concept, to make them work in my particular application.TITLE: The book's title IS misleading because it starts with "Speeech" and this book's main subject is not speech but (written) language. Actually there are only a few chapters on speech.CONCLUSION: Get this book if you are looking for a good overview of the field. The book will introduce you to a thousand of topics. As soon as you need in-depth coverage of some particular topic, you will look for additional resources.

I started reading James Allen's Natural Language Understanding to get background information on an NLP indepedent study project. The book was good, but I still found some points unclear and turned to Jurafsky/Martin for more information. In the end I found Jurafsky very comprehensive and much more down to earth than Allen. (They make useful references to popular movies and culture without sacrificing their academic reputation.) The work introduces basic NLP concepts as Allen does, but then presents applications that continually refer back to the methods. For example, Allen explains the Viterbi algorithm as a method for tagging sentences. Jurafsky/Martin present it, then refer to it in applications such as spell checking, voice recognition, and sentence tagging. The book also serves as a useful guide to finding the more significant NLP papers for further research. If you're interested in NLP this is an excellent place to start!

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