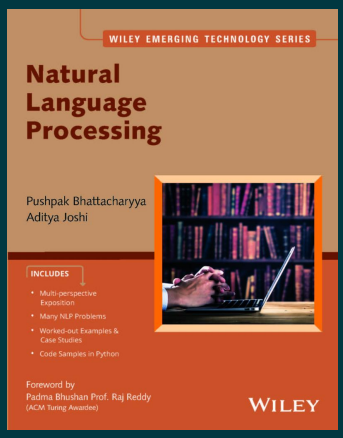
WILEY



Natural Language Processing

By Pushpak Bhattacharyya, Aditya Joshi

Paperback 9789357462389 ₹1,050.00

Pages: 420

Description

Striking a balance between foundational insights and applications, the book introduces three generations of NLP—rule-based, statistical, and neural—and approaches in these generations to NLP tasks such as shallow and deep parsing, machine translation, sentiment analysis, summarization, question-answering, and many more. In addition, chapters on large language models, shared tasks, and research dissemination serve as a solid foundation for readers to start their NLP journey. Significant focus has been given to NLP-based solutions which are increasingly finding applications in several domains.

About the Author

Pushpak Bhattacharyya, Aditya Joshi

Prof. Pushpak Bhattacharyya has done extensive research in Natural Language Processing and Machine Learning. Some of his noteworthy contributions are IndoWordnet, Cognitive NLP, Low Resource MT, NLP of Rare Language Phenomena

Table of Contents

Chapter 1 Introduction

1.1 Language and Linguistics

1.2 Ambiguity and Layers of NLP

1.3 Grammar, Probability, and Data

1.4 Generations of NLP

1.5 Scope of the Book

Chapter 2 Representation and NLP

2.1 Ambiguity and Representations

2.2 Generation 1: Belongingness via Grammars

2.3 Generation 2: Discrete Representational Semantics

2.4 Generation 3: Dense Representations

Chapter 3 Shallow Parsing

3.1 Part-of-Speech Tagging

3.2 Statistical POS Tagging

3.3 Neural POS Tagging

3.4 Chunking
Chapter 4 Deep Parsing
4.1 Linguistics of Parsing
4.2 Algorithmics of Parsing
4.3 Constituency Parsing: Rule Based
4.4 Statistical Parsing
4.5 Dependency Parsing
4.6 Neural Parsing
Chapter 5 Named Entity Recognition
5.1 Problem Formulation
5.2 Ambiguity in Named Entity Recognition
5.3 Datasets
5.4 First Generation: Rule-Based Approaches
5.5 Second Generation: Probabilistic Models
5.6 Third Generation: Sentence Representations and Position-Wise Labelling
5.7 Implications to Other NLP Problems
Chapter 6 Natural Language Inference
6.1 Ambiguity in NLI
6.2 Problem Formulation
6.3 Datasets
6.4 First Generation: Logical Reasoning
6.5 Second Generation: Alignment
6.6 Third Generation: Neural Approaches
Chapter 7 Machine Translation
7.1 Introduction
7.2 Rule-Based Machine Translation
7.3 Indian Language Statistical Machine Translation
7.4 Phrase-Based Statistical Machine Translation
7.5 Factor-Based Statistical Machine Translation
7.6 Cooperative NLP: Pivot-Based Machine Translation
7.7 Neural Machine Translation
Chapter 8 Sentiment Analysis
8.1 Problem Statement
8.2 Ambiguity for Sentiment Analysis
8.3 Lexicons for Sentiment Analysis
8.4 Rule-Based Sentiment Analysis
8.5 Statistical Sentiment Analysis
8.6 Neural Approaches to Sentiment Analysis

8.7 Sentiment Analysis in Different Languages
Chapter 9 Question Answering
9.1 Problem Formulation
9.2 Ambiguity in Question Answering
9.3 Dataset Creation
9.4 Rule-based Q&A
9.5 Second Generation
9.6 Third Generation
Chapter 10 Conversational AI
10.1 Problem Definition
10.2 Ambiguity Resolution in Conversational AI
10.3 Rule-Based Approaches to Conversational AI
10.4 Statistical Approaches
10.5 Neural Approaches
Chapter 11 Summarization
11.1 Ambiguity in Text Summarization
11.2 Problem Definitions
11.3 Early Work
11.4 Summarization Using Machine Learning
11.5 Summarization Using Deep Learning
11.6 Evaluation
Chapter 12 NLP of Incongruous Text
12.1 Incongruity and Ambiguity
12.2 Sarcasm Detection
12.3 Metaphor Detection
12.4 Humour Detection
Chapter 13 Large Language Models
13.1 Background
13.2 Ambiguity Resolution
13.3 Generative LLMs
13.4 Usage of LLMs
Chapter 14 Shared Tasks and Benchmarks
14.1 Background
14.2 Shared Tasks
14.3 NLP Benchmarks
Chapter 15 NLP Dissemination
15.1 How Is NLP Work Disseminated?
15.2 How Can One Learn about NLP Research?

15.3 How Is NLP Work Published?

Index

To purchase this product, please visit:
https://www.wileyindia.com/natural-language-processing-1.html

Scan to buy