Theory and Applications of Natural Language Processing Monographs

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Reinforcement Learning for Adaptive Dialogue Systems

A Data-driven Methodology for Dialogue Management and Natural Language Generation

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Series: Theory and Applications of Natural Language Processing

- A new methodology for developing spoken dialogue systems is described in detail
- A research guide for students and researchers
- This work provides insights, lessons, and inspiration for future research

The past decade has seen a revolution in the field of spoken dialogue systems. As in other areas of Computer Science and Artificial Intelligence, data-driven methods are now being used to drive new methodologies for system development and evaluation. This book is a unique contribution to that ongoing change. A new methodology for developing spoken dialogue systems is described in detail. The journey starts and ends with human behaviour in interaction, and explores methods for learning from the data, for building simulation environments for training and testing systems, and for evaluating the results. The detailed material covers: Spoken and Multimodal dialogue systems, Wizard-of-Oz data collection, User Simulation methods, Reinforcement Learning, and Evaluation methodologies. The book is a research guide for students and researchers with a background in Computer Science, AI, or Machine Learning. It navigates through a detailed case study in data-driven methods for development and evaluation of spoken dialogue systems. Common challenges associated with this approach are discussed and example solutions are provided. This work provides insights, lessons, and inspiration for future research and development – not only for spoken dialogue systems in particular, but for data-driven approaches to human-machine interaction in general.

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