

Preface

This book describes RECTIN (Recommender System for Tinnitus)—system supporting a physician in tinnitus patients’ diagnosis and treatment. The work verifies a hypothesis about a possibility of building such a system for the specific needs of medical facility following treatment protocol of Tinnitus Retraining Therapy. It examines possibility of using information technology, in particular methods of data mining and machine learning, in the field of medicine and practical applications of recommendation systems in the field.

The book introduces the topic of tinnitus as a problem area, shows the basic concepts of Recommender Systems (RS), its current state of the art and their real-world applications in different areas, focusing on Health RS. It proposes knowledge discovery approach for decision support system development and presents theoretical concepts and algorithms for rule-based systems, including: decision tables, classification rules, action rules extraction and meta actions. Empirical part includes: description of a raw dataset of tinnitus patients and visits, provided by Dr. P. Jastreboff from Emory University School of Medicine in Atlanta, applied data preprocessing techniques and results from experiments on classification and action rules extraction from the cleansed dataset.

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Decision Support System for Diagnosis and Treatment
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The Case of Tinnitus

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