

## Call for Book Chapters

*for the book*

# Big Data Recommender Systems: Recent Trends and Advances

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The idea of Recommender Systems was initially conceived in 90s when they were first designed to generate personalized recommendations to the users. Over the last few decades, the world has seen an exponential increase in volumes of data (known as big data) collected on a daily basis by online social networks, e-commerce websites, blogs, sensors, and search engines. This introduced new challenges for recommender systems that were initially designed without giving much consideration to scalability factors. Moreover, the modern recommender systems have to process big data, and consequently suffer from numerous issues, such as cold start, data sparsity, privacy, and security. For the past few years, numerous techniques have been developed to address various aspects of recommender systems. However, there are still many unresolved open issues and challenges that require novel and more efficient recommendation solutions to handle big data.

The proposed book is aimed to cover the recent advances, issues, novel solutions, and applications by combining experimental and theoretical research on big data recommender systems. The book will encompass original scientific contributions in the form of theoretical foundations, comparative analysis, surveys, case studies, techniques, and tools for recommender systems. A specific focus is devoted to emerging trends and the industry needs associated with utilizing recommender systems. Some of the techniques covered include surveys, models, algorithms, and architectures for big data recommender systems based on opinion mining and sentiment analysis, artificial neural networks, multi-criteria optimization, machine learning, context-awareness, social computing, semantic web, deep learning, big data analysis and analytics. Moreover, special coverage is given to topics, such as data filtering and cleaning techniques for recommendations, novelty and diversity, privacy issues, security threats and their mitigation, trust, cold start, sparsity, scalability, application domains, and recommender system evaluations.

Expected readers include researchers, engineers, undergraduate/graduate students, and IT professionals who work in the fields of knowledge engineering, big data, data mining, information systems, and recommender systems.

The aim of the proposed book is to consolidate the myriad research activities in areas of large-scale recommender systems. Topics of interest include but are not limited to:

<ul style="list-style-type: none"> <li>• Theoretical Foundations of Recommender Systems</li> <li>• Emerging Topics and Challenges in Big Data Recommendations</li> <li>• Opinion Mining and Sentiment Analysis of User Feedbacks for Big Data Recommendations</li> <li>• Artificial Neural Networks Models for Big Data Recommendation Systems</li> <li>• Multi-Criteria Optimization Approaches for Context-aware Big Data Recommendations</li> <li>• Machine Learning Models for Big Data Recommendations</li> <li>• Data Filtering and Cleaning Schemes for Big Data Recommendations</li> <li>• Social Computing and Collaborative Filtering for Big Data Recommendations</li> <li>• Addressing Novelty and Diversity in Big Data Recommendations</li> <li>• Utilizing Semantic Web for Big Data Recommendations</li> <li>• Advances in Deep Learning for Big Data Recommendations</li> <li>• Comparisons of Deep Learning Algorithms for Big Data Recommendations</li> <li>• Big Data Recommendation Challenges in Terms of Data Volume, Variety, Velocity, Veracity, and Value</li> <li>• Real-time Recommendations on Big Data Analysis and Analytics</li> <li>• Addressing Cold Start, Noisy Data, and Scalability Issues in Big Data Recommendations</li> </ul>	<ul style="list-style-type: none"> <li>• Recommendation Algorithms for Unstructured Big Data such as Text, Audio, Image, and Video</li> <li>• Privacy Issues in Big Data Recommender Systems</li> <li>• Security Threats and their Mitigation in Big Data Recommender Systems</li> <li>• Incorporating Trust in Collaborative Group-based Big Data Recommendations</li> <li>• Quantitative Evaluation Techniques for Big Data Recommendation Systems</li> <li>• Performance Metrics for Context-aware Big Data Recommendations</li> <li>• Evaluating Recommendation Systems' User Interfaces through Feedback and Human Computer Interaction</li> <li>• Benchmarking Big Data Recommendation Algorithms using Hadoop or Apache Spark</li> <li>• Real-time Optimal Route Recommendations using Map Reduce</li> <li>• Extracting User Personality Traits from Twitter Data for Recommendations</li> <li>• Big Data Recommender Systems Case Studies in Virtual Learning Communities</li> <li>• User Satisfaction in Context-aware Big Data Group Recommendations</li> <li>• Real-time Context-aware Item Recommendation for a Group</li> <li>• Novel Hybrid Approaches for Big Recommendations</li> <li>• Real-world Applications and Future Research Directions of Big Data Recommender Systems</li> </ul>
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<p><b>Submission Guidelines</b></p> <ol style="list-style-type: none"> <li>1. Chapter Title (if this is not in the list above, please suggest)</li> <li>2. Author Names, Affiliations, Emails</li> <li>3. Chapter Abstract (approx. 300-500 words)</li> <li>4. Final manuscript should be approx. 20-25 pages long as per the author guidelines available at <a href="http://www.theiet.org/resources/author-hub/books/guides-resources.cfm">http://www.theiet.org/resources/author-hub/books/guides-resources.cfm</a></li> <li>5. Please email your contributions to <a href="mailto:osmankhalid@vcomsats.edu.pk">osmankhalid@vcomsats.edu.pk</a></li> </ol>	<p><b>Important Dates</b></p> <ul style="list-style-type: none"> <li>• Title, Authors, and Abstract Due: June 1, 2017</li> <li>• Final Chapter Draft Due: September 1, 2017</li> <li>• Notification of Acceptance/Revision: October 1, 2017</li> <li>• Camera-Ready Chapter Due: November 15, 2017</li> </ul>
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