

Recommender Systems

Whether users are likely to accept the recommendations provided by a recommender system is of utmost importance to system designers and the marketers who implement them. By conceptualizing the advice seeking and giving relationship as a fundamentally social process, important avenues for understanding the persuasiveness of recommender systems open up. Specifically, research regarding influential factors in advice seeking relationships, which is abundant in the context of human-human relationships, can provide an important framework for identifying potential influence factors in recommender system context. This book reviews the existing literature on the factors in advice seeking relationships in the context of human-human, human-computer, and human-recommender system interactions. It concludes that many social cues that have been identified as influential in other contexts have yet to be implemented and tested with respect to recommender systems. Implications for recommender system research and design are discussed.

Online social networks collect information from users' social contacts and their daily interactions (co-tagging of photos, co-rating of products etc.) to provide them with recommendations of new products or friends. Lately, technological progressions in mobile devices (i.e. smart phones) enabled the incorporation of geo-location data in the traditional web-based online social networks, bringing the new era of Social and Mobile Web. The goal of this book is to bring together important research in a new family of recommender systems aimed at serving Location-based Social Networks (LBSNs). The chapters introduce a wide variety of recent approaches, from the most basic to the state-of-the-art, for providing recommendations in LBSNs. The book is organized into three parts. Part 1 provides introductory material on recommender systems, online social networks and LBSNs. Part 2 presents a wide variety of recommendation algorithms, ranging from basic to cutting edge, as well as a comparison of the characteristics of these recommender systems. Part 3 provides a step-by-step case study on the technical aspects of deploying and evaluating a real-world LBSN, which provides location, activity and friend recommendations. The material covered in the book is intended for graduate students, teachers, researchers, and practitioners in the areas of web data mining, information retrieval, and machine learning.

Somebody was watching her She had read about stalkers, but they belonged in a different, faraway world. She had no idea who it could be, who would want to harm her. She was trying desperately not to panic, but lately her sleep had been filled with nightmares, and she had awakened each morning with a feeling of impending doom. Thus begins Sidney Sheldon's chilling new novel, Tell Me Your Dreams. Three beautiful young women are suspected of committing a series of brutal murders. The police make an arrest that leads to one of the most bizarre murder trials of the century. Based on actual events, Sheldon's novel races from London to Rome to the city of Quebec to San Francisco, with a climax that will leave the reader stunned.

Although recommendation systems have become a vital research area in the fields of cognitive science, approximation theory, information retrieval and management sciences, they still require improvements to make recommendation methods more effective and intelligent. Intelligent Techniques in Recommendation Systems: Contextual Advancements and New Methods is a comprehensive collection of research on the latest advancements of intelligence techniques and their application to recommendation systems and how this could improve this field of study.

Acclaimed by various content platforms (books, music, movies) and auction sites online, recommendation systems are key elements of digital

strategies. If development was originally intended for the performance of information systems, the issues are now massively moved on logical optimization of the customer relationship, with the main objective to maximize potential sales. On the transdisciplinary approach, engines and recommender systems brings together contributions linking information science and communications, marketing, sociology, mathematics and computing. It deals with the understanding of the underlying models for recommender systems and describes their historical perspective. It also analyzes their development in the content offerings and assesses their impact on user behavior.

This book comprehensively covers the topic of recommender systems, which provide personalized recommendations of products or services to users based on their previous searches or purchases. Recommender system methods have been adapted to diverse applications including query log mining, social networking, news recommendations, and computational advertising. This book synthesizes both fundamental and advanced topics of a research area that has now reached maturity. The chapters of this book are organized into three categories: Algorithms and evaluation: These chapters discuss the fundamental algorithms in recommender systems, including collaborative filtering methods, content-based methods, knowledge-based methods, ensemble-based methods, and evaluation. Recommendations in specific domains and contexts: the context of a recommendation can be viewed as important side information that affects the recommendation goals. Different types of context such as temporal data, spatial data, social data, tagging data, and trustworthiness are explored. Advanced topics and applications: Various robustness aspects of recommender systems, such as shilling systems, attack models, and their defenses are discussed. In addition, recent topics, such as learning to rank, multi-armed bandits, group systems, multi-criteria systems, and active learning systems, are introduced together with applications. Although this book primarily serves as a textbook, it will also appeal to industrial practitioners and researchers due to its focus on applications and references. Numerous examples and exercises have been provided, and a solution manual is available for instructors.

Summary Online recommender systems help users find movies, jobs, restaurants-even romance! There's an art in combining statistics, demographics, and query terms to achieve results that will delight them. Learn to build a recommender system the right way: it can make or break your application! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Recommender systems are everywhere, helping you find everything from movies to jobs, restaurants to hospitals, even romance. Using behavioral and demographic data, these systems make predictions about what users will be most interested in at a particular time, resulting in high-quality, ordered, personalized suggestions. Recommender systems are practically a necessity for keeping your site content current, useful, and interesting to your visitors. About the Book Practical Recommender Systems explains how recommender systems work and shows how to create and apply them for your site. After covering the basics, you'll see how to collect user data and produce personalized recommendations. You'll learn how to use the most popular recommendation algorithms and see examples of them in action on sites like Amazon and Netflix. Finally, the book covers scaling problems and other issues you'll encounter as your site grows. What's inside How to collect and understand user behavior Collaborative and content-based filtering Machine learning algorithms Real-world examples in Python About the Reader Readers need intermediate programming and database skills. About the Author Kim Falk is an experienced data scientist who works daily with machine learning and recommender systems. Table of Contents PART 1 - GETTING READY FOR RECOMMENDER SYSTEMS What is a recommender? User behavior and how to collect it Monitoring the system Ratings and how to calculate them Non-personalized recommendations The user (and content) who came in from the cold PART 2 - RECOMMENDER ALGORITHMS Finding similarities among users and among content Collaborative filtering in the neighborhood Evaluating and testing your

recommender Content-based filtering Finding hidden genres with matrix factorization Taking the best of all algorithms: implementing hybrid recommenders Ranking and learning to rank Future of recommender systems

Music recommendation systems are becoming more and more popular. The increasing amount of personal data left by users on social media contributes to more accurate inference of the user's musical preferences and the same to quality of personalized systems. Health recommendation systems have become indispensable tools in decision making processes in the healthcare sector. Their main objective is to ensure the availability of valuable information at the right time by ensuring information quality, trustworthiness, authentication, and privacy concerns. Medical doctors deal with various kinds of diseases in which the music therapy helps to improve symptoms. Listening to music may improve heart rate, respiratory rate, and blood pressure in people with heart disease. Sound healing therapy uses aspects of music to improve physical and emotional health and well-being. The book presents a variety of approaches useful to create recommendation systems in healthcare, music, and in music therapy.

This book provides an in-depth discussion of challenges encountered in deploying real-life large-scale systems and the state-of-the-art solutions in personalization.

Build machine learning models, natural language processing applications, and recommender systems with PySpark to solve various business challenges. This book starts with the fundamentals of Spark and its evolution and then covers the entire spectrum of traditional machine learning algorithms along with natural language processing and recommender systems using PySpark. Machine Learning with PySpark shows you how to build supervised machine learning models such as linear regression, logistic regression, decision trees, and random forest. You'll also see unsupervised machine learning models such as K-means and hierarchical clustering. A major portion of the book focuses on feature engineering to create useful features with PySpark to train the machine learning models. The natural language processing section covers text processing, text mining, and embedding for classification. After reading this book, you will understand how to use PySpark's machine learning library to build and train various machine learning models. Additionally you'll become comfortable with related PySpark components, such as data ingestion, data processing, and data analysis, that you can use to develop data-driven intelligent applications. What You Will Learn Build a spectrum of supervised and unsupervised machine learning algorithms Implement machine learning algorithms with Spark MLlib libraries Develop a recommender system with Spark MLlib libraries Handle issues related to feature engineering, class balance, bias and variance, and cross validation for building an optimal fit model Who This Book Is For Data science and machine learning professionals. Information is an element of knowledge that can be stored, processed or transmitted. It is linked to concepts of communication, data, knowledge or representation. In a context of steady increase in the mass of information it is difficult to know what information to look for and where to find them. Computer techniques exist to facilitate this research and allow relevant information extraction. Recommendation systems introduced the notions inherent to the recommendation,

based, inter alia, information search, filtering, machine learning, collaborative approaches. It also deals with the assessment of such systems and has various applications.

Learn how to build recommender systems from one of Amazon's pioneers in the field. Frank Kane spent over nine years at Amazon, where he managed and led the development of many of Amazon's personalized product recommendation technologies. You've seen automated recommendations everywhere - on Netflix's home page, on YouTube, and on Amazon as these machine learning algorithms learn about your unique interests, and show the best products or content for you as an individual. These technologies have become central to the largest, most prestigious tech employers out there, and by understanding how they work, you'll become very valuable to them. This book is adapted from Frank's popular online course published by Sundog Education, so you can expect lots of visual aids from its slides and a conversational, accessible tone throughout the book. The graphics and scripts from over 300 slides are included, and you'll have access to all of the source code associated with it as well. We'll cover tried and true recommendation algorithms based on neighborhood-based collaborative filtering, and work our way up to more modern techniques including matrix factorization and even deep learning with artificial neural networks. Along the way, you'll learn from Frank's extensive industry experience to understand the real-world challenges you'll encounter when applying these algorithms at large scale and with real-world data. This book is very hands-on; you'll develop your own framework for evaluating and combining many different recommendation algorithms together, and you'll even build your own neural networks using Tensorflow to generate recommendations from real-world movie ratings from real people. We'll cover:

- Building a recommendation engine
- Evaluating recommender systems
- Content-based filtering using item attributes
- Neighborhood-based collaborative filtering with user-based, item-based, and KNN CF
- Model-based methods including matrix factorization and SVD
- Applying deep learning, AI, and artificial neural networks to recommendations
- Session-based recommendations with recursive neural networks
- Scaling to massive data sets with Apache Spark machine learning, Amazon DSSTNE deep learning, and AWS SageMaker with factorization machines
- Real-world challenges and solutions with recommender systems
- Case studies from YouTube and Netflix
- Building hybrid, ensemble recommenders

This comprehensive book takes you all the way from the early days of collaborative filtering, to bleeding-edge applications of deep neural networks and modern machine learning techniques for recommending the best items to every individual user. The coding exercises for this book use the Python programming language. We include an intro to Python if you're new to it, but you'll need some prior programming experience in order to use this book successfully. We also include a short introduction to deep learning, Tensorflow, and Keras if you are new to the field of artificial intelligence, but you'll need to be able to understand new computer algorithms. Dive in, and learn about one of the most interesting

and lucrative applications of machine learning and deep learning there is!

The explosive growth of e-commerce and online environments has made the issue of information search and selection increasingly serious; users are overloaded by options to consider and they may not have the time or knowledge to personally evaluate these options. Recommender systems have proven to be a valuable way for online users to cope with the information overload and have become one of the most powerful and popular tools in electronic commerce. Correspondingly, various techniques for recommendation generation have been proposed. During the last decade, many of them have also been successfully deployed in commercial environments. *Recommender Systems Handbook*, an edited volume, is a multi-disciplinary effort that involves world-wide experts from diverse fields, such as artificial intelligence, human computer interaction, information technology, data mining, statistics, adaptive user interfaces, decision support systems, marketing, and consumer behavior. Theoreticians and practitioners from these fields continually seek techniques for more efficient, cost-effective and accurate recommender systems. This handbook aims to impose a degree of order on this diversity, by presenting a coherent and unified repository of recommender systems' major concepts, theories, methodologies, trends, challenges and applications. Extensive artificial applications, a variety of real-world applications, and detailed case studies are included. *Recommender Systems Handbook* illustrates how this technology can support the user in decision-making, planning and purchasing processes. It works for well known corporations such as Amazon, Google, Microsoft and AT&T. This handbook is suitable for researchers and advanced-level students in computer science as a reference.

In this age of information overload, people use a variety of strategies to make choices about what to buy, how to spend their leisure time, and even whom to date. Recommender systems automate some of these strategies with the goal of providing affordable, personal, and high-quality recommendations. This book offers an overview of approaches to developing state-of-the-art recommender systems. The authors present current algorithmic approaches for generating personalized buying proposals, such as collaborative and content-based filtering, as well as more interactive and knowledge-based approaches. They also discuss how to measure the effectiveness of recommender systems and illustrate the methods with practical case studies. The final chapters cover emerging topics such as recommender systems in the social web and consumer buying behavior theory. Suitable for computer science researchers and students interested in getting an overview of the field, this book will also be useful for professionals looking for the right technology to build real-world recommender systems.

This book introduces novel techniques and algorithms necessary to support the formation of social networks. Concepts such as link prediction, graph patterns, recommendation systems based on user reputation, strategic partner selection,

collaborative systems and network formation based on ‘social brokers’ are presented. Chapters cover a wide range of models and algorithms, including graph models and a personalized PageRank model. Extensive experiments and scenarios using real world datasets from GitHub, Facebook, Twitter, Google Plus and the European Union ICT research collaborations serve to enhance reader understanding of the material with clear applications. Each chapter concludes with an analysis and detailed summary. Social Network-Based Recommender Systems is designed as a reference for professionals and researchers working in social network analysis and companies working on recommender systems. Advanced-level students studying computer science, statistics or mathematics will also find this books useful as a secondary text.

This timely book presents Applications in Recommender Systems which are making recommendations using machine learning algorithms trained via examples of content the user likes or dislikes. Recommender systems built on the assumption of availability of both positive and negative examples do not perform well when negative examples are rare. It is exactly this problem that the authors address in the monograph at hand. Specifically, the books approach is based on one-class classification methodologies that have been appearing in recent machine learning research. The blending of recommender systems and one-class classification provides a new very fertile field for research, innovation and development with potential applications in “big data” as well as “sparse data” problems. The book will be useful to researchers, practitioners and graduate students dealing with problems of extensive and complex data. It is intended for both the expert/researcher in the fields of Pattern Recognition, Machine Learning and Recommender Systems, as well as for the general reader in the fields of Applied and Computer Science who wishes to learn more about the emerging discipline of Recommender Systems and their applications. Finally, the book provides an extended list of bibliographic references which covers the relevant literature completely.

Social Tagging Systems are web applications in which users upload resources (e.g., bookmarks, videos, photos, etc.) and annotate it with a list of freely chosen keywords called tags. This is a grassroots approach to organize a site and help users to find the resources they are interested in. Social tagging systems are open and inherently social; features that have been proven to encourage participation. However, with the large popularity of these systems and the increasing amount of user-contributed content, information overload rapidly becomes an issue. Recommender Systems are well known applications for increasing the level of relevant content over the “noise” that continuously grows as more and more content becomes available online. In social tagging systems, however, we face new challenges. While in classic recommender systems the mode of recommendation is basically the resource, in social tagging systems there are three possible modes of recommendation: users, resources, or tags. Therefore suitable methods that properly exploit the different dimensions of social tagging systems data are needed. In this book, we survey the most recent and state-of-the-art work about a whole new generation of recommender systems built to serve social tagging systems. The book is divided into self-contained chapters covering the background material on social

tagging systems and recommender systems to the more advanced techniques like the ones based on tensor factorization and graph-based models.

This book presents group recommender systems, which focus on the determination of recommendations for groups of users. The authors summarize different technologies and applications of group recommender systems. They include an in-depth discussion of state-of-the-art algorithms, an overview of industrial applications, an inclusion of the aspects of decision biases in groups, and corresponding de-biasing approaches. The book includes a discussion of basic group recommendation methods, aspects of human decision making in groups, and related applications. A discussion of open research issues is included to inspire new related research. The book serves as a reference for researchers and practitioners working on group recommendation related topics.

There is an increasing demand for recommender systems due to the information overload users are facing on the Web. The goal of a recommender system is to provide personalized recommendations of products or services to users. With the advent of the Social Web, user-generated content has enriched the social dimension of the Web. As user-provided content data also tells us something about the user, one can learn the user's individual preferences from the Social Web. This opens up completely new opportunities and challenges for recommender systems research. Fatih Gedikli deals with the question of how user-provided tagging data can be used to build better recommender systems. A tag recommender algorithm is proposed which recommends tags for users to annotate their favorite online resources. The author also proposes algorithms which exploit the user-provided tagging data and produce more accurate recommendations. On the basis of this idea, he shows how tags can be used to explain to the user the automatically generated recommendations in a clear and intuitively understandable form. With his book, Fatih Gedikli gives us an outlook on the next generation of recommendation systems in the Social Web sphere.

This book includes the proceedings of the second workshop on recommender systems in fashion and retail (2020), and it aims to present a state-of-the-art view of the advancements within the field of recommendation systems with focused application to e-commerce, retail, and fashion by presenting readers with chapters covering contributions from academic as well as industrial researchers active within this emerging new field. Recommender systems are often used to solve different complex problems in this scenario, such as product recommendations, or size and fit recommendations, and social media-influenced recommendations (outfits worn by influencers).

Recommender systems have shown to be successful in many domains where information overload exists. This success has motivated research on how to deploy recommender systems in educational scenarios to facilitate access to a wide spectrum of information. Tackling open issues in their deployment is gaining importance as lifelong learning becomes a necessity of the current knowledge-based society. Although Educational Recommender Systems (ERS) share the same key objectives as recommenders for e-commerce applications, there are some particularities that should be considered before directly applying existing solutions from those applications. Educational Recommender Systems and Technologies: Practices and Challenges aims to provide a comprehensive review of state-of-the-art practices for ERS, as well as the challenges to achieve their actual deployment. Discussing such topics as the state-of-the-art of ERS, methodologies to develop ERS, and architectures to support the recommendation process, this book covers researchers interested in recommendation strategies for educational scenarios and in evaluating the impact of recommendations in learning, as well as academics and practitioners in the area of technology enhanced learning.

This book constitutes the thoroughly refereed post-workshop proceedings of the 7th International Workshop on Agents and Data Mining

Interaction, ADMI 2011, held in Taipei, Taiwan, in May 2011 in conjunction with AAMAS 2011, the 10th International Joint Conference on Autonomous Agents and Multiagent Systems. The 11 revised full papers presented were carefully reviewed and selected from 24 submissions. The papers are organized in topical sections on agents for data mining; data mining for agents; and agent mining applications. Now in its second edition, this book focuses on practical algorithms for mining data from even the largest datasets.

This state-of-the-art survey provides a systematic overview of the ideas and techniques of the adaptive Web and serves as a central source of information for researchers, practitioners, and students. The volume constitutes a comprehensive and carefully planned collection of chapters that map out the most important areas of the adaptive Web, each solicited from the experts and leaders in the field.

Learn the art of building robust and powerful recommendation engines using R About This Book Learn to exploit various data mining techniques Understand some of the most popular recommendation techniques This is a step-by-step guide full of real-world examples to help you build and optimize recommendation engines Who This Book Is For If you are a competent developer with some knowledge of machine learning and R, and want to further enhance your skills to build recommendation systems, then this book is for you. What You Will Learn Get to grips with the most important branches of recommendation Understand various data processing and data mining techniques Evaluate and optimize the recommendation algorithms Prepare and structure the data before building models Discover different recommender systems along with their implementation in R Explore various evaluation techniques used in recommender systems Get to know about recommenderlab, an R package, and understand how to optimize it to build efficient recommendation systems In Detail A recommendation system performs extensive data analysis in order to generate suggestions to its users about what might interest them. R has recently become one of the most popular programming languages for the data analysis. Its structure allows you to interactively explore the data and its modules contain the most cutting-edge techniques thanks to its wide international community. This distinctive feature of the R language makes it a preferred choice for developers who are looking to build recommendation systems. The book will help you understand how to build recommender systems using R. It starts off by explaining the basics of data mining and machine learning. Next, you will be familiarized with how to build and optimize recommender models using R. Following that, you will be given an overview of the most popular recommendation techniques. Finally, you will learn to implement all the concepts you have learned throughout the book to build a recommender system. Style and approach This is a step-by-step guide that will take you through a series of core tasks. Every task is explained in detail with the help of practical examples.

"This book presents innovative research being conducted into Travel Recommender Systems, travel related on-line communities, and their user interface design"--Provided by publisher.

A 195-page monograph by a top-1% Netflix Prize contestant. Learn about the famous machine learning competition. Improve your machine learning skills. Learn how to build recommender systems. What's inside: introduction to predictive modeling, a comprehensive summary of the Netflix Prize, the most known machine learning competition, with a \$1M prize, detailed description of a top-50 Netflix Prize solution predicting movie ratings, summary of the most important methods published - RMSE's from different papers listed and grouped in one place, detailed analysis of matrix factorizations / regularized SVD, how to interpret the factorization results - new, most informative movie genres, how to adapt the algorithms developed for the Netflix Prize to calculate good quality personalized recommendations, dealing with the cold-start: simple content-based augmentation, description of two rating-based recommender systems, commentary on everything: novel and unique insights, know-how from over 9 years of practicing and analysing predictive modeling.

This book is a multi-disciplinary effort that involves world-wide experts from diverse fields, such as artificial intelligence, human computer interaction, information technology, data mining, statistics, adaptive user interfaces, decision support systems, marketing, and consumer behavior. It comprehensively covers the topic of recommender systems, which provide personalized recommendations of items or services to the new users based on their past behavior. Recommender system methods have been adapted to diverse applications including social networking, movie recommendation, query log mining, news recommendations, and computational advertising. This book synthesizes both fundamental and advanced topics of a research area that has now reached maturity. Recommendations in agricultural or healthcare domains and contexts, the context of a recommendation can be viewed as important side information that affects the recommendation goals. Different types of context such as temporal data, spatial data, social data, tagging data, and trustworthiness are explored. This book illustrates how this technology can support the user in decision-making, planning and purchasing processes in agricultural & healthcare sectors.

This second edition of a well-received text, with 20 new chapters, presents a coherent and unified repository of recommender systems' major concepts, theories, methodologies, trends, and challenges. A variety of real-world applications and detailed case studies are included. In addition to wholesale revision of the existing chapters, this edition includes new topics including: decision making and recommender systems, reciprocal recommender systems, recommender systems in social networks, mobile recommender systems, explanations for recommender systems, music recommender systems, cross-domain recommendations, privacy in recommender systems, and semantic-based recommender systems. This multi-disciplinary handbook involves world-wide experts from diverse fields such as artificial intelligence, human-computer interaction, information retrieval, data mining, mathematics, statistics, adaptive user interfaces, decision support systems, psychology, marketing, and consumer behavior. Theoreticians and practitioners from these fields will find this reference to be an invaluable source of ideas, methods and techniques for developing more efficient, cost-effective and accurate recommender systems.

As an area, Technology Enhanced Learning (TEL) aims to design, develop and test socio-technical innovations that will support and enhance learning practices of individuals and organizations. Information retrieval is a pivotal activity in TEL and the deployment of recommender systems has attracted increased interest during the past years. Recommendation methods, techniques and systems open an interesting new approach to facilitate and support learning and teaching. The goal is to develop, deploy and evaluate systems that provide learners and teachers with meaningful guidance in order to help identify suitable learning resources from a potentially overwhelming variety of choices. Contributions address the following topics: i) user and item data that can be used to support learning recommendation systems and scenarios, ii) innovative methods and techniques for recommendation purposes in educational settings and iii) examples of educational platforms and tools where recommendations are incorporated.

Collaborative Filtering Recommender Systems discusses a wide variety of the recommender choices available and their implications, providing both practitioners and researchers with an introduction to the important issues underlying recommenders and current best practices for addressing these issues.

How far would you go to find yourself? Wild Animus tracks the reckless quest of Ransom Altman, a young Berkeley graduate who—roused by his literary heroes and love for his girlfriend, Lindy—resolves to live in a new world of “inexhaustible desire.” Ransom’s deepening identification with the wild mountain ram, whose passion and wisdom he seeks, drives the young lovers north—first to Seattle, then to the remote Alaskan wilderness. Alone on the unforgiving ridges of Mt. Wrangell, his imagination increasingly unhinged, Ransom begins to devise and act out a dangerous animal mythos, which he documents in a first-person manuscript, and in songs or “chants” that detail his

transformation and pursuit by a pack of strangely familiar wolves. The feverish hunt leads from the wilds to civilization and back again. And when the lovers return to brave the perilous mountain together, the truth behind Ransom's imagined transformation emerges. What they discover in those frozen heights threatens their love as well as their sanity and their lives. Is Ransom inspired by a transcendent truth, or prey to a misguided fantasy? As his grip on reality weakens, the reader shares Ransom's fears, his hopes, and his extraordinary discoveries. *Wild Animus*, Shapero's debut novel, is a search for the primordial and a journey to the breaking point. It is a story of love and surrender, of monomania—of striving, at all costs, for a bliss beyond fear.

The phenomenal growth of the Internet has resulted in huge amounts of online information, a situation that is overwhelming to the end users. To overcome this problem, personalization technologies have been extensively employed. The book is the first of its kind, representing research efforts in the diversity of personalization and recommendation techniques. These include user modeling, content, collaborative, hybrid and knowledge-based recommender systems. It presents theoretic research in the context of various applications from mobile information access, marketing and sales and web services, to library and personalized TV recommendation systems. This volume will serve as a basis to researchers who wish to learn more in the field of recommender systems, and also to those intending to deploy advanced personalization techniques in their systems.

Recommender systems use information filtering to predict user preferences. They are becoming a vital part of e-business and are used in a wide variety of industries, ranging from entertainment and social networking to information technology, tourism, education, agriculture, healthcare, manufacturing, and retail. *Recommender Systems: Algorithms and Applications* dives into the theoretical underpinnings of these systems and looks at how this theory is applied and implemented in actual systems. The book examines several classes of recommendation algorithms, including Machine learning algorithms Community detection algorithms Filtering algorithms Various efficient and robust product recommender systems using machine learning algorithms are helpful in filtering and exploring unseen data by users for better prediction and extrapolation of decisions. These are providing a wider range of solutions to such challenges as imbalanced data set problems, cold-start problems, and long tail problems. This book also looks at fundamental ontological positions that form the foundations of recommender systems and explain why certain recommendations are predicted over others. Techniques and approaches for developing recommender systems are also investigated. These can help with implementing algorithms as systems and include A latent-factor technique for model-based filtering systems Collaborative filtering approaches Content-based approaches Finally, this book examines actual systems for social networking, recommending consumer products, and predicting risk in software engineering projects.

Recommender Systems The Textbook Springer

Recommender systems provide users (businesses or individuals) with personalized online recommendations of products or information, to address the problem of information overload and improve personalized services. Recent successful applications of recommender systems are providing solutions to transform online services for e-government, e-business, e-commerce, e-shopping, e-library, e-learning, e-tourism, and more. This unique compendium not only describes theoretical research but also reports on new application developments, prototypes, and real-world case studies of recommender systems. The comprehensive volume provides readers with a timely snapshot of how new recommendation methods and algorithms can overcome challenging issues. Furthermore, the monograph systematically presents three dimensions of recommender systems — basic recommender system concepts, advanced recommender system methods, and real-world recommender system applications. By providing state-of-the-art knowledge, this excellent reference text will immensely benefit researchers,

managers, and professionals in business, government, and education to understand the concepts, methods, algorithms and application developments in recommender systems.

Designing algorithms to recommend items such as news articles and movies to users is a challenging task in numerous web applications. The crux of the problem is to rank items based on users' responses to different items to optimize for multiple objectives. Major technical challenges are high dimensional prediction with sparse data and constructing high dimensional sequential designs to collect data for user modeling and system design. This comprehensive treatment of the statistical issues that arise in recommender systems includes detailed, in-depth discussions of current state-of-the-art methods such as adaptive sequential designs (multi-armed bandit methods), bilinear random-effects models (matrix factorization) and scalable model fitting using modern computing paradigms like MapReduce. The authors draw upon their vast experience working with such large-scale systems at Yahoo! and LinkedIn, and bridge the gap between theory and practice by illustrating complex concepts with examples from applications they are directly involved with.

This book includes the proceedings of the first workshop on Recommender Systems in Fashion 2019. It presents a state of the art view of the advancements within the field of recommendation systems with focused application to e-commerce, retail and fashion. The volume covers contributions from academic as well as industrial researchers active within this emerging new field. Recommender Systems are often used to solve different complex problems in this scenario, such as social fashion-based recommendations (outfits inspired by influencers), product recommendations, or size and fit recommendations. The impact of social networks and the influence that fashion influencers have on the choices people make for shopping is undeniable. For instance, many people use Instagram to learn about fashion trends from top influencers, which helps them to buy similar or even exact outfits from the tagged brands in the post. When traced, customers' social behavior can be a very useful guide for online shopping websites, providing insights on the styles the customers are really interested in, and hence aiding the online shops in offering better recommendations and facilitating customers quest for outfits. Another well known difficulty with recommendation of similar items is the large quantities of clothing items which can be considered similar, but belong to different brands. Relying only on implicit customer behavioral data will not be sufficient in the coming future to distinguish between for recommendation that will lead to an item being purchased and kept, vs. a recommendation that might result in either the customer not following it, or eventually return the item. Finding the right size and fit for clothes is one of the major factors not only impacting customers purchase decision, but also their satisfaction from e-commerce fashion platforms. Moreover, fashion articles have important sizing variations. Finally, customer preferences towards perceived article size and fit for their body remain highly personal and subjective which influences the definition of the right size for each customer. The combination of the above factors leaves the customers alone to face a highly challenging problem of determining the right size and fit during their purchase journey, which in turn has resulted in having more than one third of apparel returns to be caused by not ordering the right article size. This challenge presents a huge opportunity for research in intelligent size and fit recommendation systems and machine learning solutions with direct impact on both customer satisfaction and business profitability. With Hands-On Recommendation Systems with Python, learn the tools and techniques required in building various kinds of powerful recommendation systems (collaborative, knowledge and content based) and deploying them to the web Key Features Build industry-standard recommender systems Only familiarity with Python is required No need to wade through complicated machine learning theory to use this book Book Description Recommendation systems are at the heart of almost every internet business today; from Facebook to Netflix to Amazon. Providing good recommendations, whether it's friends, movies, or groceries, goes a long way in defining user experience and

