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Open Problems in Mathematics
Second World Summit on the Knowledge Society, WSKS 2009, Chania, Crete, Greece, September 16-18, 2009. Proceedings
Person Re-Identification
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KELLEY HATFIELD

Visioning and Engineering the Knowledge Society - A Web Science Perspective

Springer

A concise compilation of the known interactions of the most commonly prescribed drugs, as well as their interaction with nonprescription compounds. The agents covered include CNS drugs, cardiovascular drugs, antibiotics, and NSAIDs. For each class of drugs the authors review the pharmacology, pharmacodynamics, pharmacokinetics, chemistry, metabolism, epidemiological occurrences, adverse reactions, and significant interactions.

Environmental and social pharmacological issues are also addressed in chapters on food and alcohol drug interactions, nicotine and tobacco, and anabolic doping agents. Comprehensive and easy-to-use, Handbook of Drug Interactions: A Clinical and Forensic Guide provides physicians with all the information needed to avoid prescribing drugs with undesirable interactions, and toxicologists with all the data necessary to interpret possible

interactions between drugs found simultaneously in patient samples.

Papers from the 1998 Workshop Oxford

University Press, USA

This proceedings volume

is based on papers

presented at the

Workshops on

Combinatorial and

Additive Number Theory

(CANT), which were held

at the Graduate Center of

the City University of New

York in 2011 and 2012.

The goal of the workshops

is to survey recent

progress in combinatorial

number theory and

related parts of

mathematics. The

workshop attracts

researchers and students

who discuss the state-of-

the-art, open problems

and future challenges in

number theory.

Court Life in China: The

Capital, Its Officials and

People American

Mathematical Soc.

This comprehensive

reference provides an in-

depth discussion on state-

of-the-art regulatory

science in bioequivalence.

In sixteen chapters, the

volume explores a broad

range of topics pertaining

to bioequivalence,

including its origin and

principles, statistical

considerations, food effect

studies, conditions for

waivers of bioequivalence

studies, Biopharmaceutics

Classification Systems,

Biopharmaceutics Drug

Disposition Classification

System, bioequivalence

modeling/simulation and

best practices in

bioanalysis. It also

discusses bioequivalence

studies with

pharmacodynamic and

clinical endpoints as well

as bioequivalence

approaches for highly

variable drugs, narrow

therapeutic index drugs,

liposomes, locally acting

gastrointestinal drug

products, topical products

and nasal and inhalation

products. FDA

Bioequivalence Standards

is written by FDA

regulatory scientists who

develop regulatory

policies and conduct

regulatory assessment of

bioequivalence. As such,

both practical case

studies and fundamental

science are highlighted in

these chapters. The book

is a valuable resource for

scientists who work in the

pharmaceutical industry,

regulatory agencies and

academia as well as

undergraduate and

graduate students looking

to expand their

knowledge about

bioequivalence standards.

Advances in Algorithms, Theory, and Applications

Springer Nature
Similarity between objects plays an important role in both human cognitive processes and artificial systems for recognition and categorization. How to appropriately measure such similarities for a given task is crucial to the performance of many machine learning, pattern recognition and data mining methods. This book is devoted to metric learning, a set of techniques to automatically learn similarity and distance functions from data that has attracted a lot of interest in machine learning and related fields in the past ten years. In this book, we provide a thorough review of the metric learning literature that covers algorithms, theory and applications for both numerical and structured data. We first introduce relevant definitions and classic metric functions, as well as examples of their use in machine learning and data mining. We then review a wide range of metric learning algorithms, starting with the simple setting of linear distance and similarity learning. We show how one may scale-up these methods to very large amounts of training

data. To go beyond the linear case, we discuss methods that learn nonlinear metrics or multiple linear metrics throughout the feature space, and review methods for more complex settings such as multi-task and semi-supervised learning. Although most of the existing work has focused on numerical data, we cover the literature on metric learning for structured data like strings, trees, graphs and time series. In the more technical part of the book, we present some recent statistical frameworks for analyzing the generalization performance in metric learning and derive results for some of the algorithms presented earlier. Finally, we illustrate the relevance of metric learning in real-world problems through a series of successful applications to computer vision, bioinformatics and information retrieval. *Privacy and Incentive*
Walter de Gruyter GmbH & Co KG
Advanced statistical modeling and knowledge representation techniques for a newly emerging area of machine learning and probabilistic reasoning; includes introductory

material, tutorials for different proposed approaches, and applications. Handling inherent uncertainty and exploiting compositional structure are fundamental to understanding and designing large-scale systems. Statistical relational learning builds on ideas from probability theory and statistics to address uncertainty while incorporating tools from logic, databases and programming languages to represent structure. In *Introduction to Statistical Relational Learning*, leading researchers in this emerging area of machine learning describe current formalisms, models, and algorithms that enable effective and robust reasoning about richly structured systems and data. The early chapters provide tutorials for material used in later chapters, offering introductions to representation, inference and learning in graphical models, and logic. The book then describes object-oriented approaches, including probabilistic relational models, relational Markov networks, and probabilistic entity-relationship models as well as logic-based formalisms including

Bayesian logic programs, Markov logic, and stochastic logic programs. Later chapters discuss such topics as probabilistic models with unknown objects, relational dependency networks, reinforcement learning in relational domains, and information extraction. By presenting a variety of approaches, the book highlights commonalities and clarifies important differences among proposed approaches and, along the way, identifies important representational and algorithmic issues. Numerous applications are provided throughout.

An Annotated Bibliography Springer Science & Business Media

"The editors of this extraordinary book, Indika Liyanage and Badeng Nima, have brought together a wonderfully wide-ranging collection of chapters. The breadth and depth of the studies of education issues in China and Australia are impressive. The topics encompass important questions concerning education policies, curricula, pedagogy, equality, parental engagement, cultural heritage, and anti-drug education. The scope of

the book includes Chinese and Australian settings that range from kindergartens to higher education, and from rural to urban environments. The diversity of the book strengthens rather than weakens its coherence, because the golden thread running through all the chapters is a portrayal of the complexity of education provision when global, national and local forces interact. Written by academics with hands-on experience, the chapters provide evidence-based discussions of practical conundrums, enriched by the sophisticated use of interdisciplinary approaches. As a result, this book is powerful, challenging and groundbreaking." – Bob Adamson, UNESCO Chairholder in TVET and Lifelong Learning, Education University of Hong Kong

Germline Development National Learning Corporation

"Court Life in China: The Capital, Its Officials and People" by Isaac Taylor Headland. Published by Good Press. Good Press publishes a wide range of titles that encompasses every genre. From well-known classics & literary fiction and non-fiction to forgotten—or yet

undiscovered gems—of world literature, we issue the books that need to be read. Each Good Press edition has been meticulously edited and formatted to boost readability for all e-readers and devices. Our goal is to produce eBooks that are user-friendly and accessible to everyone in a high-quality digital format.

China and the World

CRC Press

Connects classical cellular descriptive studies with more recent work on the molecular and genetic aspects regarding germline development. Prominent scientists discuss research on a range of organisms including insects, worms, birds, fish, amphibia, mammals and green algae. Specification of germ cells, their migration to the gonads and subsequent interactions with the soma and evolutionary factors of their segregation are among the topics covered.

Morgan & Claypool Publishers

Over the past three decades turbomachines experienced a steep increase in efficiency and performance. Based on fundamental principles of turbomachinery thermo-

fluid mechanics, numerous CFD based calculation methods are being developed to simulate the complex 3-dimensional, highly unsteady turbulent flow within turbine or compressor stages. The objective of this book is to present the fundamental principals of turbomachinery fluid-thermodynamic design process of turbine and compressor components, power generation and aircraft gas turbines in a unified and compact manner. The book provides senior undergraduate students, graduate students and engineers in the turbomachinery industry with a solid background of turbomachinery flow physics and performance fundamentals that are essential for understanding turbomachinery performance and flow complexes.

Dependency Parsing MIT Press

Dynamic secrets are constantly generated and updated from messages exchanged between two communication users. When dynamic secrets are used as a complement to existing secure communication systems, a stolen key or password

can be quickly and automatically reverted to its secret status without disrupting communication. "Dynamic Secrets in Communication Security" presents unique security properties and application studies for this technology. Password theft and key theft no longer pose serious security threats when parties frequently use dynamic secrets. This book also illustrates that a dynamic secret based security scheme guarantees impersonation attacks are detected even if an adversary steals a user's password or their key is lost. Practitioners and researchers working in network security or wireless communications will find this book a must-have reference. "Dynamic Secrets in Communication Security" is also a valuable secondary text for advanced-level students in computer science and electrical engineering.

Multistate Bar

Examination (MBE)

American Mathematical Soc.

The goal in putting together this unique compilation was to present the current status of the solutions to some of the most essential open problems in pure and

applied mathematics. Emphasis is also given to problems in interdisciplinary research for which mathematics plays a key role. This volume comprises highly selected contributions by some of the most eminent mathematicians in the international mathematical community on longstanding problems in very active domains of mathematical research. A joint preface by the two volume editors is followed by a personal farewell to John F. Nash, Jr. written by Michael Th. Rassias. An introduction by Mikhail Gromov highlights some of Nash's legendary mathematical achievements. The treatment in this book includes open problems in the following fields: algebraic geometry, number theory, analysis, discrete mathematics, PDEs, differential geometry, topology, K-theory, game theory, fluid mechanics, dynamical systems and ergodic theory, cryptography, theoretical computer science, and more. Extensive discussions surrounding the progress made for each problem are designed to reach a wide community of readers, from graduate students and established

research mathematicians to physicists, computer scientists, economists, and research scientists who are looking to develop essential and modern new methods and theories to solve a variety of open problems.

Combinatorial and

Additive Number Theory

Federated

Learning Privacy and

Incentive

Optimization Theory is an active area of research with numerous

applications; many of the books are designed for

engineering classes, and

thus have an emphasis on problems from such fields.

Covering much of the same material, there is less emphasis on coding and detailed applications as the intended audience is more mathematical.

There are still several important problems discussed (especially scheduling problems), but there is more emphasis on theory and less on the nuts and bolts of coding.

A constant theme of the text is the “why” and the “how” in the subject. Why are we able to do a calculation efficiently?

How should we look at a problem? Extensive effort is made to motivate the mathematics and isolate how one can apply ideas/perspectives to a

variety of problems. As many of the key algorithms in the subject require too much time or detail to analyze in a first course (such as the runtime of the Simplex Algorithm), there are numerous comparisons to simpler algorithms which students have either seen or can quickly learn (such as the Euclidean algorithm) to motivate the type of results on runtime savings.

Semi-Supervised

Learning John Wiley & Sons

This open access book provides an overview of the recent advances in representation learning theory, algorithms and applications for natural language processing (NLP). It is divided into three parts. Part I presents the representation learning techniques for multiple language entries, including words, phrases, sentences and documents. Part II then introduces the representation techniques for those objects that are closely related to NLP, including entity-based world knowledge, sememe-based linguistic knowledge, networks, and cross-modal entries.

Lastly, Part III provides open resource tools for

representation learning techniques, and discusses the remaining challenges and future research directions. The theories and algorithms of representation learning presented can also benefit other related domains such as machine learning, social network analysis, semantic Web, information retrieval, data mining and computational biology. This book is intended for advanced undergraduate and graduate students, post-doctoral fellows, researchers, lecturers, and industrial engineers, as well as anyone interested in representation learning and natural language processing.

Graph Representation

Learning CreateSpace

In a manner accessible to beginning

undergraduates, An

Invitation to Modern

Number Theory

introduces many of the

central problems,

conjectures, results, and

techniques of the field,

such as the Riemann

Hypothesis, Roth's

Theorem, the Circle

Method, and Random

Matrix Theory. Showing

how experiments are used

to test conjectures and

prove theorems, the book

allows students to do

original work on such problems, often using little more than calculus (though there are numerous remarks for those with deeper backgrounds). It shows students what number theory theorems are used for and what led to them and suggests problems for further research. Steven Miller and Ramin Takloo-Bighash introduce the problems and the computational skills required to numerically investigate them, providing background material (from probability to statistics to Fourier analysis) whenever necessary. They guide students through a variety of problems, ranging from basic number theory, cryptography, and Goldbach's Problem, to the algebraic structures of numbers and continued fractions, showing connections between these subjects and encouraging students to study them further. In addition, this is the first undergraduate book to explore Random Matrix Theory, which has recently become a powerful tool for predicting answers in number theory. Providing exercises, references to the background literature, and Web links to previous

student research projects, *An Invitation to Modern Number Theory* can be used to teach a research seminar or a lecture class. [The Mathematics of Encryption: An Elementary Introduction](#) Springer

This history considers 100 years of education at the Adelaide Dental School. It contains a history of the formation and development of the School from 4 October 2017, the date the establishment of a dental school that would be affiliated with the university and the hospital for the education of dental students was first proposed. It also contains three chapters in which former students of the Dental School provide personal viewpoints of their education at the Adelaide Dental School. The final section contains a potpourri of archival material, including copies of documents and examples of lecture notes and examination papers.

CANT 2011 and 2012

Amer Assn for Artificial
How quickly can you compute the remainder when dividing by 120143? Why would you even want to compute this? And what does this have to do with cryptography? Modern cryptography lies

at the intersection of mathematics and computer sciences, involving number theory, algebra, computational complexity, fast algorithms, and even quantum mechanics. Many people think of codes in terms of spies, but in the information age, highly mathematical codes are used every day by almost everyone, whether at the bank ATM, at the grocery checkout, or at the keyboard when you access your email or purchase products online. This book provides a historical and mathematical tour of cryptography, from classical ciphers to quantum cryptography. The authors introduce just enough mathematics to explore modern encryption methods, with nothing more than basic algebra and some elementary number theory being necessary. Complete expositions are given of the classical ciphers and the attacks on them, along with a detailed description of the famous Enigma system. The public-key system RSA is described, including a complete mathematical proof that it works. Numerous related topics are covered, such as efficiencies of

algorithms, detecting and correcting errors, primality testing and digital signatures. The topics and exposition are carefully chosen to highlight mathematical thinking and problem solving. Each chapter ends with a collection of problems, ranging from straightforward applications to more challenging problems that introduce advanced topics. Unlike many books in the field, this book is aimed at a general liberal arts student, but without losing mathematical completeness.

Routledge

A comprehensive review of an area of machine learning that deals with the use of unlabeled data in classification problems: state-of-the-art algorithms, a taxonomy of the field, applications, benchmark experiments, and directions for future research. In the field of machine learning, semi-supervised learning (SSL) occupies the middle ground, between supervised learning (in which all training examples are labeled) and unsupervised learning (in which no label data are given). Interest in SSL has increased in recent years, particularly because of application domains in

which unlabeled data are plentiful, such as images, text, and bioinformatics. This first comprehensive overview of SSL presents state-of-the-art algorithms, a taxonomy of the field, selected applications, benchmark experiments, and perspectives on ongoing and future research. Semi-Supervised Learning first presents the key assumptions and ideas underlying the field: smoothness, cluster or low-density separation, manifold structure, and transduction. The core of the book is the presentation of SSL methods, organized according to algorithmic strategies. After an examination of generative models, the book describes algorithms that implement the low-density separation assumption, graph-based methods, and algorithms that perform two-step learning. The book then discusses SSL applications and offers guidelines for SSL practitioners by analyzing the results of extensive benchmark experiments. Finally, the book looks at interesting directions for SSL research. The book closes with a discussion of the relationship between semi-supervised learning

and transduction.

An Invitation to Modern Number Theory

MIT Press

Data clustering, also known as cluster analysis, is an unsupervised process that divides a set of objects into homogeneous groups. Since the publication of the first edition of this monograph in 2007, development in the area has exploded, especially in clustering algorithms for big data and open-source software for cluster analysis. This second edition reflects these new developments, covers the basics of data clustering, includes a list of popular clustering algorithms, and provides program code that helps users implement clustering algorithms. *Data Clustering: Theory, Algorithms and Applications, Second Edition* will be of interest to researchers, practitioners, and data scientists as well as undergraduate and graduate students. [Teaching and Learning Mathematics Online](#) Cambridge University Press

Graph-structured data is ubiquitous throughout the natural and social sciences, from telecommunication

networks to quantum chemistry. Building relational inductive biases into deep learning architectures is crucial for creating systems that can learn, reason, and generalize from this kind of data. Recent years have seen a surge in research on graph representation learning, including techniques for deep graph embeddings, generalizations of convolutional neural networks to graph-structured data, and neural message-passing approaches inspired by belief propagation. These advances in graph representation learning have led to new state-of-the-art results in numerous domains,

including chemical synthesis, 3D vision, recommender systems, question answering, and social network analysis. This book provides a synthesis and overview of graph representation learning. It begins with a discussion of the goals of graph representation learning as well as key methodological foundations in graph theory and network analysis. Following this, the book introduces and reviews methods for learning node embeddings, including random-walk-based methods and applications to knowledge graphs. It then provides a technical synthesis and introduction to the highly successful graph neural network

(GNN) formalism, which has become a dominant and fast-growing paradigm for deep learning with graph data. The book concludes with a synthesis of recent advancements in deep generative models for graphs—a nascent but quickly growing subset of graph representation learning.

Learning for Text Categorization MDPI

This treatise develops the theory of random processes and its application to the study of systems and the analysis of random data. It covers the fundamentals of random process models, the applications of probabilistic models and statistical estimation.