

Social Computing Behavioral Modeling And Prediction

Fundamentals of Clinical Data Science, Clinical Prediction Models, Model-Free Prediction and Regression, Modern Data Science with R, Medical Risk Prediction Models, Social Computing, Behavioral-Cultural Modeling and Prediction, Applied Drought Modeling, Prediction, and Mitigation, Environmental Modelling and Prediction, Computational Intelligence for Modelling and Prediction, Reliability Performance Modeling and Prediction for Linear Algebra Algorithms, Floods Modeling, Prediction and Mitigation, Predictions in Time Series Using Regression Models, Clinical Prediction Models, Molecular Modeling and Prediction of Bioactivity, Social Computing, Behavioral-Cultural Modeling and Prediction, Social Computing, Behavioral-Cultural Modeling and Prediction, Social Computing, Behavioral-Cultural Modeling, and Prediction, Applied Predictive Modeling, Interpretable Machine Learning, Handbook of Research on Disease Prediction Through Data Analytics and Machine Learning, Computer-Aided Modeling and Prediction of Performance of the Modified Lundell Class of Alternators in Space Station Solar Dynamic Power System, Handbook of Research on Predictive Modeling and Optimization Methods in Science and Engineering, Linear Models for the Prediction of Animal Breeding Values, Modelling and Predicting Textile Behavior, Time Series Analysis, Modeling and Applications, Predictive Modeling with SAS Enterprise Miner, Intelligent Modelling, Prediction, and Diagnosis from Epidemiological Data, Power Prediction Modeling of Conventional High-Speed Air Craft, Artificial Intelligence and Legal Analytics, Proceedings of the Corrosion/Social Computing, Behavioral Modeling, and Prediction, Using Modeling to Predict and Prevent Victimization, Handbook of Probabilistic Models, Nonclinical Statistics for Pharmaceutical and Biotechnology Industries, Process Dynamics and Control, Practical Statistics for Data Scientists, Machine Learning for Knowledge Discovery with R, Dynamic Prediction in Clinical Survival Analysis

When somebody should go to the books stores, search instigation by shop, shelf by shelf, it is in fact problematic. This is why we offer the book compilations in this website. It will entirely ease you to Social Computing Behavioral Modeling And Prediction as you such as.

By searching the title, publisher, or authors of guide you really want, you can discover them rapidly. In the house, workplace, or perhaps in your method can be all best place within net connections. If you ambition to download and install the Social Computing Behavioral Modeling And Prediction, it is certainly simple then, before currently we extend the link to buy and make bargains download and install Social Computing Behavioral Modeling And Prediction as a result simple!

Clinical Prediction Models Nov 16 2021 Prediction models are important in various fields, including medicine, physics, meteorology, and finance. Prediction models will become more relevant in the medical field with the increase in knowledge of potential predictors of outcome, e.g. from genetics. Also, the number of applications will increase, e.g. with targeted early detection of disease, and individualized approaches to diagnostic testing and treatment. The current era of evidence-based medicine is an individualized approach to medical decision-making. Evidence-based medicine has a central place for meta-analysis to summarize results from randomized controlled trials; similarly prediction models may summarize the effects of predictors to provide individualized predictions of a diagnostic or prognostic outcome. Why Read This Book? My motivation for working on this book stems primarily from the fact that the development and applications of prediction models are often suboptimal in medical publications. With this book I hope to contribute to better understanding of relevant issues and give practical advice on better modelling strategies than are nowadays widely used. Issues include: (a) Better predictive modelling is sometimes easily possible if a large data set with high quality data is available, but all continuous predictors are dichotomized, which is known to have several disadvantages.

Interpretable Machine Learning Apr 09 2021 This book is about making machine learning models and their decisions interpretable. After exploring the concepts of interpretability, you will learn about simple, interpretable models such as decision trees, decision rules and linear regression. Later chapters focus on general model-agnostic methods for interpreting black box models like feature importance and accumulated local effects and explaining individual predictions with Shapley values and LIME. All interpretation methods are explained in depth and discussed critically. How do they work under the hood? What are their strengths and weaknesses? How can their outputs be interpreted? This book will enable you to select and correctly apply the interpretation method that is most suitable for your machine learning project.

Computer-Aided Modeling and Prediction of Performance of the Modified Lundell Class of Alternators in Space Station Solar Dynamic Power System Feb 07 2021 The main purpose of this project is the development of computer-aided models for purpose of studying the effects of various design changes on the parameters and performance characteristics of the modified Lundell class of alternators (MLA) as components of a solar dynamic power system supplying electric energy needs in the forthcoming space station. Key to this modeling effort is the computation of magnetic field distribution in MLAs. Since the nature of the magnetic field is three-dimensional, the first step in the investigation was to apply the finite element method to discretize volume, using a tetrahedron as the basic 3-D element. Details of the stator 3-D finite element grid are given. A preliminary look at the early stage of a 3-D rotor grid is presented. Demerdash, Nabeel A. O. and Wang, Ren-Hong Unspecified Center...

Nonclinical Statistics for Pharmaceutical and Biotechnology Industries Dec 25 2019 This book serves as a reference text for regulatory, industry and academic statisticians and also a handy manual for entry level Statisticians. Additionally it aims to

stimulate academic interest in the field of Nonclinical Statistics and promote this as an important discipline in its own right. This text brings together for the first time in a single volume a comprehensive survey of methods important to the nonclinical sciences within the pharmaceutical and biotechnology industries. Specifically the Discovery and Translational sciences, the Safety/Toxicology sciences, and the Chemistry, Manufacturing and Controls sciences. Drug discovery and development is a long and costly process. Most decisions in the drug development process are made with incomplete information. The data is rife with uncertainties and hence risky by nature. This is therefore the purview of Statistics. As such, this book aims to introduce real-world important statistical thinking and its application in these nonclinical areas. The chapters provide as appropriate, a scientific background to the topic, relevant regulatory guidance, current statistical practice, and further research directions.

Molecular Modeling and Prediction of Bioactivity Oct 15 2021 The book covers highly important topics in the challenging process of drug discovery from lead finding to drug candidates. Focus is upon the potential usefulness of methods for design of lead discovery libraries, library optimisation, computational chemistry methods for the calculation of energetics of protein-ligand interaction, and computer simulations of biological activities. Important topics include new developments in chemometrics and rational molecular design as well as different aspects of structure representation, knowledge-based approaches to structure identification, and information handling.

Intelligent Modelling, Prediction, and Diagnosis from Epidemiological Data Aug 10 2020 "Intelligent Modelling, Prediction, and Diagnosis from Epidemiological Data COVID-19 and Beyond is a handy treatise to elicit and elaborate possible intelligent mechanisms for modeling, prediction, diagnosis and early detection of diseases arising out of outbreaks of different epidemics. A special reference to COVID-19. Starting with a formal introduction of the human immune systems, this book focuses on the epidemiological aspects with due cognizance to modeling, prevention and diagnosis of epidemics. In addition, it also deals with evolving decisions on post-pandemic economic-social structure. The book offers comprehensive coverage of the most essential topics, including: A general overview of pandemics and their outbreak behavior. A detailed overview of CI techniques. Intelligent modeling, prediction and diagnostic measures for pandemics. Prognostic models. Post-pandemic socio-economic structure. The accompanying case studies are based on real-world data sets available till date. While other books may deal with this Covid-19 pandemic, none features the human immune systems as well as influences on the environmental disorder due to the ongoing pandemic. The book is primarily intended to come to the benefit of medical professionals and healthcare workers along with virologists who are essentially the frontline fighters of Covid-19 pandemic. In addition, it would also serve as an essential resource for relevant researchers in this interdisciplinary field apart from tutors, post-graduate and under-graduate students of information sciences"--

Social Computing, Behavioral-Cultural Modeling, and Prediction Jul 1 2021 This book constitutes the refereed proceedings of the 8th International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction, SBP 2015, held in Washington DC, USA, in March/April 2015. The 24 full papers presented together with 36 poster papers were carefully reviewed and selected from 118 submissions. The goal of the conference was to advance our understanding of human behavior through the development and application of mathematical, computational, statistical, simulation, predictive and other models that provide fundamental insights into factors contributing to human socio-cultural dynamics. The topical areas addressed by the papers are social and behavioral sciences, health sciences, engineering, computer and information science.

Predictive Modeling with SAS Enterprise Miner Sep 02 2020 « Written for business analysts, data scientists, statisticians, student predictive modelers, and data miners, this comprehensive text provides examples that will strengthen your understanding of essential concepts and methods of predictive modeling. »--

Model-Free Prediction and Regression Oct 27 2022 The Model-Free Prediction Principle expounded upon in this monograph is based on the simple notion of transforming a complex dataset to one that is easier to work with, e.g., i.i.d. or Gaussian. As such, it restores the emphasis on observable quantities, i.e., current and future data, as opposed to unobservable model parameters and estimates thereof, and yields optimal predictors in diverse settings such as regression and time series. Furthermore, the Model-Free Bootstrap takes us beyond point prediction in order to construct frequentist prediction intervals without resort to unrealistic assumptions such as normality. Prediction has been traditionally approached via a model-based paradigm, i.e., (a) fit a model to the data at hand, and (b) use the fitted model to extrapolate/predict future data. Due to both mathematical and computational constraints, 20th century statistical practice focused mostly on parametric models. Fortunately, with the advent of widely available powerful computing in the late 1970s, computer-intensive methods such as the bootstrap and cross-validation freed practitioners from the limitations of parametric models, and paved the way towards the 'big data' era of the 21st century. Nonetheless, this is a further step one may take, i.e., going beyond even nonparametric models; this is where the Model-Free Prediction Principle is particularly useful. Interestingly, being able to predict a response variable Y associated with a regressor variable X taking on any possible values seems to inadvertently also achieve the main goal of modeling, i.e., trying to describe how Y depends on X. Hence, as prediction can be treated as a by-product of model-fitting, key estimation problems can be addressed as a by-product of being able to perform prediction. In other words, a practitioner can use Model-Free Prediction ideas in order to additionally obtain point estimates and confidence intervals for relevant parameters leading to an alternative, transformation-based approach to statistical inference.

Modelling and Predicting Textile Behavior Nov 04 2020 The textile industry can experience a vast array of problems. Modelling and prediction represents a group of techniques that have been widely used to explore the nature of these problems, it can highlight the mechanisms involved and lead to predictions of the textile behaviour. This book provides an overview of how textile modelling and prediction techniques can be used successfully within the textile industry for solving various problems. The first group of chapters reviews different types of models and methods available for predicting textile structures and behaviour. Chapters include modelling of yarn, woven and nonwoven materials. The second group of chapters presents a selection of case studies, expressing the strengths and limitations and how various models are applied in specific applications. Case studies such as modelling colour properties

textiles and modelling, simulation and control of textile dyeing are discussed. With its distinguished editor and international range of contributors, Modelling and predicting textile behaviour is essential reading material for textile technologists, fibre scientists and textile engineers. It will also be beneficial for academics researching this important area. Provides an overview of the different types of models and methods that can be used successfully within the textile industry Reviews the structural hierarchy in textile materials fundamental to the modelling of textile fibrous structures Assesses the strengths and weaknesses of different textile models and how specific models are applied in different situations

Social Computing, Behavioral-Cultural Modeling and Prediction Sep 14 2021 This book constitutes the refereed proceedings of the 4th International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction, held in College Park, MD, USA, March 29-31, 2011. The 48 papers and 3 keynotes presented in this volume were carefully reviewed and selected from 88 submissions. The papers cover a wide range of topics including social network analysis; modeling; machine learning and data mining; social behaviors; public health; cultural aspects; and effects and search.

Performance Modeling and Prediction for Linear Algebra Algorithms Feb 19 2022

Handbook of Research on Predictive Modeling and Optimization Methods in Science and Engineering Jun 06 2021 The disciplines of science and engineering rely heavily on the forecasting of prospective constraints for concepts that have not yet been proven to exist, especially in areas such as artificial intelligence. Obtaining quality solutions to the problems presented becomes increasingly difficult due to the number of steps required to sift through the possible solutions, and the ability to solve such problems requires the recognition of patterns and the categorization of data into specific sets. Predictive modeling and optimization methods allow unknown events to be categorized based on statistics and classifiers input by researchers. The Handbook of Research on Predictive Modeling and Optimization Methods in Science and Engineering is a critical reference source that provides comprehensive information on the use of optimization techniques and predictive models to solve real-life engineering and science problems. Through discussions on techniques such as robust design optimization, water level prediction, and the prediction of human actions, this publication identifies solutions to developing problems and new solutions for existing problems, making this publication a valuable resource for engineers, researchers, graduate students, and other professionals.

Applied Drought Modeling, Prediction, and Mitigation Jun 23 2022 Applied Drought Modelling, Prediction, and Mitigation provides a practical guide to new and recent methodologies for drought characterizations, change modeling, down-scaling, and future predictions. The modeling procedures covered by the book include recent advancements in regional drought extent, coverage, intensity, and water deficit predictions, which are increasingly significant given current climate change impacts on water resources. Each modeling procedure is explained theoretically prior to the mathematical derivation, and includes book examples, exercises, and case studies that supplement the applied and practical material, thus making the approaches accessible and applicable to the reader. Presents new and recent methodologies for drought characterizations, change modeling, down-scaling, and future predictions Includes online modeling tools to help readers quickly solve drought related problems Presents new methodologies, including drought features (duration, intensity, and magnitude) at any desired risk level Include case studies from arid and semi-arid regions

Environmental Modelling and Prediction May 22 2022 In this book the authors consider the natural environment as an integrated system. The physical, chemical and biological processes that govern the behaviour of the environmental system can thus be understood through mathematical modelling, and their evolution can be studied by means of numerical simulation. The book contains a summary of various efficient approaches in atmospheric prediction, such as numerical weather prediction and statistical forecast of climate change, as well as other successful methods in land surface modelling. The authors explore new theories and methods in environment prediction such as systems analysis and information theory. Attention is given to new achievements in remote sensing tele-metering and geographic information systems.

Using Modeling to Predict and Prevent Victimization Feb 25 2020 This work provides clear application of a new statistical modeling technique that can be used to recognize patterns in victimization and prevent repeat victimization. The history of crime prevention techniques range from offender-based, to environment/situation-based, to victim-based. The authors of this work have found more accurate ways to predict and prevent victimization using a statistical modeling, based around crime concentration, sub-group profiling with regard to crime vulnerability levels, to predict areas and individuals vulnerable to crime. Following from this prediction, they propose policing strategies to improve crime prevention based on these predictions. With a combination of immediate actions and longer-term research recommendations, this work will be of interest to researchers and policy makers focused on crime prevention, police studies, victimology and statistical applications.

Fundamentals of Clinical Data Science Dec 29 2022 This open access book comprehensively covers the fundamentals of clinical data science, focusing on data collection, modelling and clinical applications. Topics covered in the first section on data collection include: data sources, data at scale (big data), data stewardship (FAIR data) and related privacy concerns. Aspects of predictive modelling using techniques such as classification, regression or clustering, and prediction model validation will be covered in the second section. The third section covers aspects of (mobile) clinical decision support systems, operational excellence and value based healthcare. Fundamentals of Clinical Data Science is an essential resource for healthcare professionals and IT consultants intending to develop and refine their skills in personalized medicine, using solutions based on large datasets from electronic health records or telemonitoring programmes. The book's promise is "no math, no code" and will explain the topics in a style that is optimized for a healthcare audience.

Computational Intelligence for Modelling and Prediction Apr 21 2022 The application of Computational Intelligence in emerging research areas such as Granular Computing, Mechatronics, and Bioinformatics shows its usefulness often emphasized by Prof. Lotfi Zadeh, the inventor of fuzzy logic and many others. This book contains recent advances in Computational Intelligence methods for modeling, optimization and prediction and covers a large number of applications. The book presents new Computational

Intelligence theory and methods for modeling and prediction. The range of the various applications is captured with 5 chapters in image processing, 2 chapters in audio processing, 3 chapters in commerce and finance, 2 chapters in communication networks, and 6 chapters containing other applications.

Social Computing, Behavioral-Cultural Modeling and Prediction **Jul 12 2021** This book constitutes the refereed proceedings of the 5th International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction, held in College Park, MD, USA, in April 2012. The 43 revised papers presented in this volume were carefully reviewed and selected from 76 submissions. The papers cover a wide range of topics including economics, public health, and terrorist activities, as well as utilize a broad variety of methodologies, e.g., machine learning, cultural modeling and cognitive modeling.

Artificial Intelligence and Legal Analytics **May 30 2020** This book describes how text analytics and computational models of legal reasoning will improve legal IR and let computers help humans solve legal problems.

Proceedings of the Corrosion/20038 **2020**

Dynamic Prediction in Clinical Survival Analysis **Aug 21 2019** There is a huge amount of literature on statistical models for the prediction of survival after diagnosis of a wide range of diseases like cancer, cardiovascular disease, and chronic kidney disease. Current practice is to use prediction models based on the Cox proportional hazards model and to present those as static models of remaining lifetime after diagnosis or treatment. In contrast, Dynamic Prediction in Clinical Survival Analysis focuses on dynamic models for the remaining lifetime at later points in time, for instance using landmark models. Designed to be useful to applied statisticians and clinical epidemiologists, each chapter in the book has a practical focus on the issues of working with real life data. Chapters conclude with additional material either on the interpretation of the models, alternative models, or theoretical background. The book consists of four parts: Part I deals with prognostic models for survival data using (clinical) information available at baseline, based on the Cox model Part II is about prognostic models for survival data using (clinical) information available at baseline, when the proportional hazards assumption of the Cox model is violated Part III is dedicated to the use of dependent information in dynamic prediction Part IV explores dynamic prediction models for survival data using genomic data. Dynamic Prediction in Clinical Survival Analysis summarizes cutting-edge research on the dynamic use of predictive models with traditional and new approaches. Aimed at applied statisticians who actively analyze clinical data in collaboration with clinicians, the analyses of the different data sets throughout the book demonstrate how predictive models can be obtained from prospective data sets.

Time Series Analysis, Modeling and Applications **Oct 03 2020** Temporal and spatiotemporal data form an inherent fabric of the modern society as we are faced with streams of data coming from numerous sensors, data feeds, recordings associated with numerous applications embracing physical and human-generated phenomena (environmental data, financial markets, Internet activities, etc.). A quest for a thorough analysis, interpretation, modeling and prediction of time series comes with an ongoing challenge of developing models that are both accurate and user-friendly (interpretable). The volume is aimed to exploit the conceptual and algorithmic framework of Computational Intelligence (CI) to form a cohesive and comprehensive environment for building models of time series. The contributions covered in the volume are fully reflective of the wealth of the CI technologies by bringing together ideas, algorithms, and numeric studies, which convincingly demonstrate their relevance, maturity and visible usefulness. It relies upon the truly remarkable diversity of methodological and algorithmic approaches and case studies. This volume is aimed at a broad audience of researchers and practitioners engaged in various branches of operations research, management, social sciences, engineering, and economics. Owing to the nature of the material being covered and a way it has been arranged, it establishes a comprehensive and timely picture of the ongoing pursuits in the area and fosters further developments.

Machine Learning for Knowledge Discovery with R **Sep 21 2019** Machine Learning for Knowledge Discovery with R contains numerous methodologies and examples for statistical modelling, inference, and prediction of data analysis. It includes many recent supervised and unsupervised machine learning methodologies such as recursive partitioning modelling, regularized regression, support vector machine, neural network, clustering, and causal-effect inference. Additionally, it emphasizes statistical thinking of data analysis, use of statistical graphs for data structure exploration, and result presentations. The book includes many real-world data examples from life-science, finance, etc. to illustrate the applications of the methods described therein. Key Features: Contains statistical theory for the most recent supervised and unsupervised machine learning methodologies. Emphasizes broad statistical thinking, judgment, graphical methods, and collaboration with subject-matter-experts in analysis, interpretation, and presentations. Written by statistical data analysis practitioner for practitioners. The book is suitable for upper-level-undergraduate or graduate-level data analysis course. It also serves as a useful desk-reference for data analysts in scientific research or industrial applications.

Social Computing, Behavioral-Cultural Modeling and Prediction **Aug 13 2021** This book constitutes the refereed proceedings of the 4th International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction, held in College Park, MD, USA, March 29-31, 2011. The 48 papers and 3 keynotes presented in this volume were carefully reviewed and selected from numerous submissions. The papers cover a wide range of topics including social network analysis; modeling; machine learning and data mining; social behaviors; public health; cultural aspects; and effects and search.

Social Computing, Behavioral-Cultural Modeling and Prediction **Jul 24 2022** This book constitutes the refereed proceedings of the 7th International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction, SBP 2014, held in Washington DC, USA, in April 2014. The 51 full papers presented were carefully reviewed and selected from 101 submissions. The SBP conference provides a forum for researchers and practitioners from academia, industry, and government agencies to exchange ideas on current challenges in social computing, behavioral-cultural modeling and prediction, and on state-of-the-art methods and best practices being adopted to tackle these challenges. The topical areas addressed by the papers are social and behavioral sciences, health sciences, military science, and information science.

Predictions in Time Series Using Regression Models **Dec 17 2021** This book will interest and assist people who are dealing with the

problems of predictions of time series in higher education and research. It will greatly assist people who apply time series to practical problems in their work and also serve as a textbook for postgraduate students in statistics economics and related fields.

Practical Statistics for Data Science Oct 23 2019 Statistical methods are a key part of data science, yet very few data scientists have any formal statistics training. Courses and books on basic statistics rarely cover the topic from a data science perspective. This practical guide explains how to apply various statistical methods to data science, tells you how to avoid their misuse, and gives you advice on what's important and what's not. Many data science resources incorporate statistical methods but lack a deep statistical perspective. If you're familiar with the R programming language, and have some exposure to statistics, this quick reference bridges the gap in an accessible, readable format. With this book, you'll learn: Why exploratory data analysis is a key preliminary step in data science How random sampling can reduce bias and yield a higher quality dataset, even with big data the principles of experimental design yield definitive answers to questions How to use regression to estimate outcomes and detect anomalies Key classification techniques for predicting which categories a record belongs to Statistical machine learning methods that "learn" from data Unsupervised learning methods for extracting meaning from unlabeled data

Modern Data Science with R Sep 26 2022 From a review of the first edition: "Modern Data Science with R... is rich with examples and is guided by a strong narrative voice. What's more, it presents an organizing framework that makes a convincing argument that data science is a course distinct from applied statistics" (The American Statistician). Modern Data Science with R is a comprehensive data science textbook for undergraduates that incorporates statistical and computational thinking to solve real-world data problems. Rather than focus exclusively on case studies or programming syntax, this book illustrates how statistical programming in the state-of-the-art R/RStudio computing environment can be leveraged to extract meaningful information from a variety of data in the service of addressing compelling questions. The second edition is updated to reflect the growing influence of the tidyverse set of packages. All code in the book has been revised and styled to be more readable and easier to understand. New functionality from packages like sf, purrr, tidymodels, and tidytext is now integrated into the text. All chapters have been revised and several have been split, re-organized, or re-imagined to meet the shifting landscape of best practice.

Applied Predictive Modeling May 10 2021 Applied Predictive Modeling covers the overall predictive modeling process, beginning with the crucial steps of data preprocessing, data splitting and foundations of model tuning. The text then provides intuitive explanations of numerous common and modern regression and classification techniques, always with an emphasis on illustration and solving real data problems. The text illustrates all parts of the modeling process through many hands-on, real-life examples and every chapter contains extensive R code for each step of the process. This multi-purpose text can be used as an introduction to predictive models and the overall modeling process, a practitioner's reference handbook, or as a text for advanced undergraduate or graduate level predictive modeling courses. To that end, each chapter contains problem sets to help solidify the covered concepts and uses data available in the book's R package. This text is intended for a broad audience as both an introduction to predictive models as well as a guide to applying them. Non-mathematical readers will appreciate the intuitive explanations of the techniques while an emphasis on problem-solving with real data across a wide variety of applications will aid practitioners who wish to expand their expertise. Readers should have knowledge of basic statistical ideas, such as correlation and linear regression analysis. While the text is biased against complex equations, a mathematical background is needed for advanced topics.

Linear Models for the Prediction of Animal Breeding Values Dec 05 2020 The prediction of producing desirable traits in offspring such as increased growth rate, or superior meat, milk and wool production is a vital economic tool to the animal scientist. Summarising the latest developments in genomics relating to animal breeding values and design of breeding programmes, this 2nd edition includes models of survival analysis, social interaction and sire and dam models, as well as advancements in the use of genomic data in the computation of genomic breeding values.

Power Prediction Modeling of Conventional High-Speed Craft Jun 30 2020 The proposed book addresses various power prediction methods, a principal design objective for high-speed craft of displacement, semi-displacement, and planing type. At the core of power prediction methods are mathematical models based on experimental data derived from various high-speed hull and propeller series. Regression analysis and Artificial Neural Network (ANN) methods are used as extraction tools for this kind of models. The most significant factors for in-service power prediction are bare hull resistance, dynamic trim, and the propeller's open-water efficiency. Therefore, mathematical modeling of these factors is a specific focus of the book. Furthermore, the book includes a summary of most of the power-prediction-relevant literature published in the last 50 years, and as such is intended as a reference overview of the best high-speed craft modeling practices. Once these mathematical models have been developed and validated, they can be readily programmed into software tools, thereby enabling the parametric analyses required for the optimization of a high-speed craft design. The proposed book is intended primarily for naval architects who design and develop various types of high-speed vessels (yachts, boats etc.), as well as for students who are interested in the design of fast vessels. The book includes useful Excel Macro Codes for the outlined mathematical models. Moreover, software for all considered models is provided.

Clinical Prediction Models Nov 28 2022 The second edition of this volume provides insight and practical illustrations on how modern statistical concepts and regression methods can be applied in medical prediction problems, including diagnostic and prognostic outcomes. Many advances have been made in statistical approaches towards outcome prediction, but a sensible methodology is needed for model development, validation, and updating, such that prediction models can better support medical practice. There is an increasing need for personalized evidence-based medicine that uses an individualized approach to medical decision-making. In this Big Data era, there is expanded access to large volumes of routinely collected data and an increased number of applications for prediction models, such as targeted early detection of disease and individualized approaches to diagnostic testing and treatment. Clinical Prediction Models presents a practical checklist that needs to be considered for development of a valid prediction model. Steps include preliminary considerations such as dealing with missing values; coding of predictors; selection of

main effects and interactions for a multivariable model; estimation of model parameters with shrinkage methods and incorporation of external data; evaluation of performance and usefulness; internal validation; and presentation formatting. The text also addresses common issues that make prediction models suboptimal, such as small sample sizes, exaggerated claims, and poor generalizability. The text is primarily intended for clinical epidemiologists and biostatisticians. Including many case studies and publicly available R code and data sets, the book is also appropriate as a textbook for a graduate course on predictive model diagnosis and prognosis. While practical in nature, the book also provides a philosophical perspective on data analysis in medicine that goes beyond predictive modeling. Updates to this new and expanded edition include: • A discussion of Big Data and its implications for the design of prediction models • Machine learning issues • More simulations with missing 'y' values • Extended discussion on between-cohort heterogeneity • Description of ShinyApp • Updated LASSO illustration • New case studies

Handbook of Probabilistic Modeling Jan 26 2020 Handbook of Probabilistic Models carefully examines the application of advanced probabilistic models in conventional engineering fields. In this comprehensive handbook, practitioners, researchers and scientists will find detailed explanations of technical concepts, applications of the proposed methods, and the respective scientific approaches needed to solve the problem. This book provides an interdisciplinary approach that creates advanced probabilistic models for engineering fields, ranging from conventional fields of mechanical engineering and civil engineering, to electronics, electrical, and sciences, climate, agriculture, water resource, mathematical sciences and computer sciences. Specific topics covered include minimax probability machine regression, stochastic finite element method, relevance vector machine, logistic regression, Monte Carlo simulations, random matrix, Gaussian process regression, Kalman filter, stochastic optimization, maximum likelihood, Bayesian inference, Bayesian update, kriging, copula-statistical models, and more. Explains the application of advanced probabilistic models encompassing multidisciplinary research Applies probabilistic modeling to emerging areas in engineering Provides an interdisciplinary approach to probabilistic models and their applications, thus solving a wide range of practical problems

Flood Modeling, Prediction and Mitigation Jan 18 2022 This book draws on the author's professional experience and expertise in humid and arid regions to familiarize readers with the basic scientific philosophy and methods regarding floods and their impact on human life and property. The basis of each model, algorithm and calculation methodology is presented, together with logical and analytical strategies. Global warming and climate change trends are addressed, while flood risk assessments, vulnerability, preventive and mitigation procedures are explained systematically, helping readers apply them in a rational and effective manner. Lastly, real-world project applications are highlighted in each section, ensuring readers grasp not only the theoretical aspects but also their concrete implementation.

Social Computing, Behavioral Modeling, and Prediction Mar 28 2020 Social computing concerns the study of social behavior and context based on computational systems. Behavioral modeling reproduces the social behavior, and allows for experimenting with and deep understanding of behavior, patterns, and potential outcomes. The pervasive use of computer and Internet technology provides an unprecedented environment where people can share opinions and experiences, offer suggestions and advice, debate, and even conduct experiments. Social computing facilitates behavioral modeling in model building, analysis, pattern mining, anticipation, and prediction. The proceedings from this interdisciplinary workshop provide a platform for researchers, practitioners, and graduate students from sociology, behavioral and computer science, psychology, cultural study, information systems, and operations research to share results and develop new concepts and methodologies aimed at advancing and deepening our understanding of social and behavioral computing to aid critical decision making.

Process Dynamics and Control Nov 23 2019 Offering a different approach to other textbooks in the area, this book is a comprehensive introduction to the subject divided in three broad parts. The first part deals with building physical models, the second part with developing empirical models and the final part discusses developing process control solutions. Theory is discussed where needed to ensure students have a full understanding of key techniques that are used to solve a modeling problem. Highlights: Features: Includes worked out examples of processes where the theory learned early on in the text can be applied. Uses MATLAB simulation examples of all processes and modeling techniques- further information on MATLAB can be obtained from www.mathworks.com Includes supplementary website to include further references, worked examples and figures from the literature. This book is structured and aimed at upper level undergraduate students within chemical engineering and other engineering disciplines looking for a comprehensive introduction to the subject. It is also of use to practitioners of process control where an integrated approach of physical and empirical modeling is particularly valuable.

Reliability Mar 20 2022 Bringing together business and engineering to reliability analysis With manufactured products exploding in numbers and complexity, reliability studies play an increasingly critical role throughout a product's entire life cycle - from design to post-sale support. Reliability: Modeling, Prediction, and Optimization presents a remarkably broad framework for the analysis of the technical and commercial aspects of product reliability, integrating concepts and methodologies from such diverse areas as engineering, materials science, statistics, probability, operations research, and management. Written in plain language by two highly respected experts in the field, this practical work provides engineers, operations managers, and applied statisticians with both qualitative and quantitative tools for solving a variety of complex, real-world reliability problems. A wealth of examples and case studies accompanies: * Comprehensive coverage of assessment, prediction, and improvement at each stage of a product life cycle * Clear explanations of modeling and analysis for hardware ranging from a single part to whole systems * Thorough coverage of test design and statistical analysis of reliability data * A special chapter on software reliability * Coverage of effective management of reliability, product support, testing, pricing, and related topics * Lists of sources for technical information, data, and computer programs * Hundreds of graphs, charts, and tables, as well as over 500 references * PowerPoint slides are available from the Wiley editorial department.

Medical Risk Prediction Models Aug 25 2022 Medical Risk Prediction Models: With Ties to Machine Learning is a hands-on book

for clinicians, epidemiologists, and professional statisticians who need to make or evaluate a statistical prediction model based on data. The subject of the book is the patient's individualized probability of a medical event within a given time horizon. Gerds and Kattan describe the mathematical details of making and evaluating a statistical prediction model in a highly pedagogical manner while avoiding mathematical notation. Read this book when you are in doubt about whether a Cox regression model predicts better than a random survival forest. Features: All you need to know to correctly make an online risk calculator from scratch
Discrimination, calibration, and predictive performance with censored data and competing risks R-code and illustrative examples
Interpretation of prediction performance via benchmarks Comparison and combination of rival modeling strategies via cross-validation
Thomas A. Gerds is a professor at the Biostatistics Unit at the University of Copenhagen and is affiliated with the Danish Heart Foundation. He is the author of several R-packages on CRAN and has taught statistics courses to non-statisticians for over 10 years. Michael W. Kattan is a highly cited author and Chair of the Department of Quantitative Health Sciences at Cleveland Clinic. He is a Fellow of the American Statistical Association and has received two awards from the Society for Medical Decision Making: the Eugene L. Saenger Award for Distinguished Service, and the John M. Eisenberg Award for Practical Application of Medical Decision-Making Research.

Handbook of Research on Disease Prediction Through Data Analytics and Machine Learning
By applying data analytics techniques and machine learning algorithms to predict disease, medical practitioners can more accurately diagnose and treat patients. However, researchers face problems in identifying suitable algorithms for pre-processing, transformations, and integration of clinical data in a single module, as well as seeking different ways to build and evaluate models. The Handbook of Research on Disease Prediction Through Data Analytics and Machine Learning is a pivotal reference source that explores the application of algorithms to making disease predictions through the identification of symptoms and information retrieval from images such as MRIs, ECGs, EEGs, etc. Highlighting a wide range of topics including clinical decision support systems, biomedical image analysis, and prediction models, this book is ideally designed for clinicians, physicians, programmers, computer engineers, IT specialists, data analysts, hospital administrators, researchers, academicians, and graduate and post-graduate students.