Mixing Reliability Prediction Models Maximizes Accuracy

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Large-Scale Offshore Wind Power in the United States Springer Nature
This is a print on demand edition of a hard to find publication. Offshore wind power is poised to deliver an essential contribution to a clean, robust, and diversified U.S. energy portfolio. Capturing and using this large and inexhaustible resource has the potential to mitigate climate change, improve the environment, increase energy security, and stimulate the U.S. economy. The U.S. is now deliberating an energy policy that will have a powerful impact on the nation¿s energy and economic health for decades to come. This report provides a broad understanding of today¿s wind industry and the offshore resource, as well as the associated technology challenges, economics, permitting procedures, and potential risks and benefits. Charts and tables.

Safety and Reliability of Complex Engineered Systems Infinite Study
Replacement Models with Minimal Repair is a collection of works by several well-known specialists on the subject of minimal repair in replacement policies. It gives an exhaustive list of minimal repair models for the effective planning of minimal repair and maintenance actions. Written in an engaging style, Replacement Models with Minimal Repair balances complex mathematical models with practical applications. It is divided into six parts that cover: mathematical modeling of minimal repair; preventive maintenance models and optimal scheduling of imperfect preventive maintenance activities; a new warranty servicing strategy with imperfect repair; mathematical models combining burn-in procedure and general maintenance policies; methods for parameters' estimation of minimal repair models; and product support. Replacement Models with Minimal Repair is for anyone with an interest in minimal repair and its impact on maintenance policies and strategies. It is a particularly useful resource for researchers, practitioners, and graduate students.

Advances in Maritime Technology and Engineering Elsevier
Genomic selection (GS) has been the most prominent topic in breeding science in the

last two decades. The continued interest is promoted by its huge potential impact on the efficiency of breeding. Predicting a breeding value based on molecular markers and phenotypic values of relatives may be used to manipulate three parameters of the breeder's equation. First, the accuracy of the selection may be improved by predicting the genetic value more reliably when considering the records of relatives and the realized genomic relationship. Secondly, genotyping and predicting may be more cost effective than comprehensive phenotyping. Resources can instead be allocated to increasing population sizes and selection intensity. The third, probably most important factor, is time. As shown in dairy cattle breeding, reducing cycle time by crossing selection candidates earlier may have the strongest impact on selection gain. Many different prediction models have been used, and different ways of using predicted values in a breeding program have been explored. We would like to address the questions: i. How did GS change breeding schemes of different crops in the last 20 years? ii. What was the impact on realized selection gain? iii. What would be the best structure of a crop-specific breeding scheme to exploit the full potential of GS? iv. What is the potential of hybrid prediction, epistasis effect models, deep learning methods and other extensions of the standard prediction of additive effects? v. What are the long-term effects of GS? vi. Can predictive breeding approaches also be used to harness genetic resources from germplasm banks in a more efficient way to adapt current germplasm to new environmental challenges? This Research Topic welcomes submissions of Original Research papers, Opinions, Perspectives, Reviews, and Mini-Reviews related to these themes: 1. Genomic selection: statistical methodology 2. The (optimal) use of GS in breeding schemes 3. Practical experiences with GS (selection gain, long-term effects, negative side effects) 4. Predictive approaches to harness genetic resources Concerning point 1): If an original research paper compares different methods empirically without theoretical considerations on when one or the other method should be better, the methods should be compared with at least five different data sets. The data sets should differ either in crop, genotyping method or its source, for instance from a breeding program or gene bank accessions. Concerning point 2): Manuscripts addressing the use of GS in breeding schemes should illustrate breeding schemes that are run in practice. General ideas about schemes that may be run in the future may be considered as 'Perspective' articles. Conflict of Interest statements: - Topic Editor Valentin Wimmer is affiliated to KWS SAAT SE & Co. KGaA, Germany. - Topic Editor Brian Gardunia is affiliated to Bayer Crop Sciences and has a collaboration with AbacusBio, and is an author on patents with Bayer Crop Sciences. The other Topic Editors did not disclose any conflicts of interest. Image credit: CIMMYT, reproduced under the CC BY-NC-SA 2.0 license

A Systematic Literature Review on Mathematical Models of Humanitarian Logistics Transaction Publishers

Safety and Reliability of Complex Engineered Systems contains the Proceedings of the 25th European Safety and Reliability Conference, ESREL 2015, held 7-10 September 2015 in Zurich, Switzerland. Including 570 papers on theories and methods in the area of risk, safety and reliability, and their applications to a wide range of industrial, civil and social sectors, this book will be of interest to academics and professionals involved or interested in aspect of risk, safety and reliability in various engineering areas.

Safety of Computer Control Systems 1992 (SAFECOMP' 92) World Scientific

While thin film technology has benefited greatly from artificial intelligence (AI) and machine learning (ML) techniques, there is still much to be learned from a full-scale exploration of these technologies in atomic layer deposition (ALD). This book provides in-depth information regarding the application of ML-based modeling techniques in thin film technology as a standalone approach and integrated with the classical simulation and modeling methods. It is the first of its kind to present detailed information regarding approaches in ML-based modeling, optimization, and prediction of the behaviors and characteristics of ALD for improved process quality control and discovery of new materials. As such, this book fills significant knowledge gaps in the existing resources as it provides extensive information on ML and its applications in film thin technology. Offers an in-depth overview of the fundamentals of thin film technology, state-of-the-art computational simulation approaches in ALD, ML techniques, algorithms, applications, and challenges. Establishes the need for and significance of ML applications in ALD while introducing integration approaches for ML techniques with computation simulation approaches. Explores the application of key techniques in ML, such as predictive analysis, classification techniques, feature engineering, image processing capability, and microstructural analysis of deep learning algorithms and generative model benefits in ALD. Helps readers gain a holistic understanding of the exciting applications of ML-based solutions to ALD problems and apply them to real-world issues. Aimed at materials scientists and engineers, this book fills significant knowledge gaps in existing resources as it provides extensive information on ML and its applications in film thin technology. It also opens space for future intensive research and intriguing opportunities for ML-enhanced ALD processes, which scale from academic to industrial applications.

Computational Collective Intelligence CRC Press

Leading the way in this field, the Encyclopedia of Quantitative Risk Analysis and Assessment is the first publication to offer a modern, comprehensive and in-depth resource to the huge variety of disciplines involved. A truly international work, its coverage ranges across risk issues pertinent to life scientists, engineers, policy makers, healthcare professionals, the finance industry, the military and practising statisticians. Drawing on the expertise of world-renowned authors and editors in this field this title provides up-to-date material on drug safety, investment theory, public policy applications, transportation safety, public perception of risk, epidemiological risk, national defence and security, critical infrastructure, and program management. This major publication is easily accessible for all those involved in the field of risk assessment and analysis. For ease-of-use it is available in print and online.

Editorial: Best Practice Approaches for Mixed Methods Research in Psychological Science CRC Press

Designed Experiments for Science and Engineering is a versatile and overarching toolkit that explores various methods of designing experiments for over 20 disciplines in science and engineering. Designed experiments provide a structured approach to hypothesis testing, data analysis, and decision-making. They allow researchers and engineers to efficiently explore multiple factors, interactions, and their impact on outcomes, ultimately leading to better-designed processes, products, and systems across a wide range of scientific and engineering disciplines. Each discipline covered in this book includes the key characteristics of the steps in choosing and executing the experimental designs (one factor, fractional factorial,

mixture experimentation, factor central composite, 3-factor + central composite, etc.) and reviews the various statistical tools used as well as the steps in how to utilize each (standard deviation analysis, analysis of variance [ANOVA], relative standard deviation, bias analysis, etc.). This book is essential reading for students and professionals who are involved in research and development within various fields in science and engineering, such as mechanical engineering, environmental science, manufacturing, and aerospace engineering.

Genomic Selection: Lessons Learned and Perspectives Elsevier

In today’s global and highly competitive environment, continuous improvement in the processes and products of any field of engineering is essential for survival. This book gathers together the full range of statistical techniques required by engineers from all fields. It will assist them to gain sensible statistical feedback on how their processes or products are functioning and to give them realistic predictions of how these could be improved. The handbook will be essential reading for all engineers and engineering-connected managers who are serious about keeping their methods and products at the cutting edge of quality and competitiveness.

Software Measurement Siam

In the next several decades, a significant percentage of the country's transportation, communications, environmental, and power system infrastructures, as well as public buildings and facilities, will have to be renewed or replaced. Next-generation infrastructure will have to meet very high expectations in terms of durability, constructability, performance, and life-cycle cost. One way of meeting future expectations will be through improved, high-performance materials, but before new materials can be confidently deployed in the field, a thorough and comprehensive understanding must be developed of their long-term performance in a variety of applications and physical environments. The National Science Foundation (NSF) has launched an initiative to promote the development of innovative short-term laboratory or in-situ tests for making accurate, reliable predictions of the long-term performance of materials and requested that the National Research Council (NRC) conduct a workshop as a reconnaissance-level assessment of models and methods that are being used, or potentially could be used, to determine the long-term performance of infrastructure materials and components.

Evolution in Computational Intelligence Springer Nature

Safety and Reliability – Theory and Applications contains the contributions presented at the 27th European Safety and Reliability Conference (ESREL 2017, Portorož, Slovenia, June 18-22, 2017). The book covers a wide range of topics, including: • Accident and Incident modelling • Economic Analysis in Risk Management • Foundational Issues in Risk Assessment and Management • Human Factors and Human Reliability • Maintenance Modeling and Applications • Mathematical Methods in Reliability and Safety • Prognostics and System Health Management • Resilience Engineering • Risk Assessment • Risk Management • Simulation for Safety and Reliability Analysis • Structural Reliability • System Reliability, and • Uncertainty Analysis. Selected special sessions include contributions on: the Marie Skłodowska-Curie innovative training network in structural safety; risk approaches in insurance and fi nance sectors; dynamic reliability and probabilistic safety assessment; Bayesian and statistical methods, reliability data and testing; oganizational factors and safety culture; software reliability and safety; probabilistic methods applied to power systems; socio-technical-economic systems; advanced safety assessment methodologies: extended Probabilistic Safety Assessment; reliability; availability; maintainability and safety in railways: theory & practice; big data risk analysis and management, and model-based reliability and safety engineering. Safety and Reliability – Theory and Applications will be of interest to professionals and academics working in a wide range of industrial and governmental sectors including: Aeronautics and Aerospace, Automotive Engineering, Civil Engineering, Electrical and Electronic Engineering, Energy Production and Distribution, Environmental Engineering, Information Technology and Telecommunications, Critical Infrastructures, Insurance and Finance, Manufacturing, Marine Industry, Mechanical Engineering, Natural Hazards, Nuclear Engineering, Offshore Oil and Gas, Security and Protection, Transportation, and Policy Making.

Dynamics and Predictability of Large-Scale, High-Impact Weather and Climate Events IGI Global

This study of the hunters of the settlement of Inukjuak (Inujjuaq) in Ungava, northern Quebec, evaluates the utility of models drawn from evolutionary ecology, including optimal foraging theory, in analyzing the subsistence economy of a contemporary (Inuit) hunting-gathering people, and places the Inujjuamiut society in a general anthropological context.

Flood Forecasting John Wiley & Sons

Flood Forecasting: A Global Perspective, Second Edition covers hydrologic forecasting systems on both a national and regional scale. This updated edition includes a breakdown by county contribution and solutions to common issues with a wide range of approaches to address the difficulties inherent in the development, implementation and operational success of national-scale flood forecasting systems. Special attention is given to recent advances in machine learning techniques for flood forecasting. Overall, the information will lead to improvements of existing systems and provide a valuable reference on the intricacies of forecast systems in different parts of the world. - Covers global and regional systems, thus allowing readers to understand the different forecasting systems and how they developed - Offers practical applications for groups trying to improve existing flood forecasting systems - Includes innovative solutions for those interested in developing new systems - Contains analytical and updated information on forecasting and monitoring systems

Best Practices in Software Measurement Cambridge University Press

Contains 21 papers addressing the industrial applications of chemical, petrochemical, and biochemical mixing and multiphase processing. Some topics include hydrodynamic analysis of a two-phase tubular reactor; a new scale-up rule and evaluation of traditional rules from a viewpoint of energy spectru

Hydraulic Research in the United States and Canada World Scientific

This book presents the proceedings of 8th International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA 2020), which aims to bring together researchers, scientists, engineers and practitioners to share new ideas and experiences in the domain of intelligent computing theories with prospective applications to various engineering disciplines. The book is divided into two volumes: Evolution in Computational Intelligence (Volume 1) and Intelligent Data Engineering and Analytics (Volume 2). Covering a broad range of topics in computational intelligence, the book features papers on theoretical as well as practical aspects of areas such as ANN and genetic algorithms, computer interaction, intelligent control optimization, evolutionary computing, intelligent e-learning systems, machine

learning, mobile computing, and multi-agent systems. As such, it is a valuable reference resource for postgraduate students in various engineering disciplines.

Artificial Intelligence Transformations for Healthcare Applications: Medical Diagnosis, Treatment, and Patient Care Springer Science & Business Media

The Current Index to Statistics (CIS) is a bibliographic index of publications in statistics, probability, and related fields.

Deep Learning Methods and Applications in Brain Imaging for the Diagnosis of Neurological and Psychiatric Disorders Springer Science & Business Media

The first professional reference on this highly relevant topic, for drug developers, pharmacologists and toxicologists. The authors provide more than a systematic overview of computational tools and knowledge bases for drug metabolism research and their underlying principles. They aim to convey their expert knowledge distilled from many years of experience in the field. In addition to the fundamentals, computational approaches and their applications, this volume provides expert accounts of the latest experimental methods for investigating drug metabolism in four dedicated chapters. The authors discuss the most important caveats and common errors to consider when working with experimental data. Collating the knowledge gained over the past decade, this practice-oriented guide presents methods not only used in drug development, but also in the development and toxicological assessment of cosmetics, functional foods, agrochemicals, and additives for consumer goods, making it an invaluable reference in a variety of disciplines.

Designed Experiments for Science and Engineering Frontiers Media SA

Advances in Maritime Technology and Engineering comprises a collection of the papers presented at the 7th International Conference on Maritime Technology and Engineering (MARTECH 2024) held in Lisbon, Portugal, on 14-16 May 2024. This Conference has evolved from the series of biannual national conferences in Portugal, which have become an international event, reflecting the internationalization of the maritime sector and its activities. MARTECH 2024 is the seventh of this new series of biannual conferences. This book comprises 142 contributions that were reviewed by an International Scientific Committee. Advances in Maritime Technology and Engineering is dedicated to maritime transportation, ports as well as maritime safety and reliability. It further comprises sections dedicated to ship design, cruise ship design, and to the structural aspects of ship design, such as ultimate strength and composites, subsea structures as pipelines, and to ship building and ship repair. The Proceedings in Marine Technology and Ocean Engineering series is dedicated to the publication of proceedings of peer-reviewed international conferences dealing with various aspects of “Marine Technology and Ocean Engineering”. The series includes the proceedings of the following conferences: the International Maritime Association of the Mediterranean (IMAM) conferences, the Marine Structures (MARSTRUCT) conferences, the Renewable Energies Offshore (RENEW) conferences and the Maritime Technology (MARTECH) conferences. The “Marine Technology and Ocean Engineering” series is also open to new conferences that cover topics on the sustainable exploration of marine resources in various fields, such as maritime transport and ports, usage of the ocean including coastal areas, nautical activities, the exploration and exploitation of mineral resources, the protection of the marine environment and is resources, and risk analysis, safety and reliability. The aim of the series is to stimulate advanced education and training through the wide dissemination of the results of scientific research.

New Developments for Embracing Genomic Selection in Breeding Applications Springer Science & Business Media

Practical approach to software measurement Contains hands-on industry experiences

Research Agenda for Test Methods and Models to Simulate the Accelerated Aging of Infrastructure Materials John Wiley & Sons

Brain imaging has been successfully used to generate image-based biomarkers for various neurological and psychiatric disorders, such as Alzheimer’s and related dementias, Parkinson’s disease, stroke, traumatic brain injury, brain tumors, depression, schizophrenia, etc. However, accurate brain image-based diagnosis at the individual level remains elusive, and this applies to the diagnosis of neuropathological diseases as well as clinical syndromes. In recent years, deep learning techniques, due to their ability to learn complex patterns from large amounts of data, have had remarkable success in various fields, such as computer vision and natural language processing. Applying deep learning methods to brain imaging-assisted diagnosis, while promising, is facing challenges such as insufficiently labeled data, difficulty in interpreting diagnosis results, variations in data acquisition in multi-site projects, integration of multimodal data, clinical heterogeneity, etc. The goal of this research topic is to gather cutting-edge research that showcases the application of deep learning methods in brain imaging for the diagnosis of neurological and psychiatric disorders. We encourage submissions that demonstrate novel approaches to overcome various abovementioned difficulties and achieve more accurate, reliable, generalizable, and interpretable diagnosis of neurological and psychiatric disorders in this field.

Safety and Reliability. Theory and Applications Elsevier

Humanitarian logistics (HL) is considered one of the most significant issues of disaster operations and management. Thus, HL operation should be viable enough to function well under the uncertain and complex nature of the disaster. Many difficulties in pre-and post-disaster phases bring both human and economic losses. Therefore, it is essential to make sure that the HL operations are designed efficiently. In the last two decades, several publications have emphasized efficient HL operations and proposed several mathematical models and algorithms to increase the efficiency of HL operations and motivated the necessity of a systematic literature review. A systematic literature review is deemed pertinent due to its transparent and detailed article searching procedure. In this study, due to the importance of the mathematical optimization model, we reviewed more than one hundred articles published between 2000 and 2020 to investigate the optimization models in the field of HL.We classified the optimization models into three main problems: facility location problems, relief distribution, and mass evacuation where each of the classified areas includes both deterministic and non-deterministic models.