

Traffic Engineering Data Solutions

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Data Analytics: Paving the Way to Sustainable Urban Mobility Cengage Learning

This book presents many valuable tips for making decisions related to traffic flow in the transport networks. The knowledge base in practical examples, as well as the decision support systems described in this book, finds interest among people who face the daily challenge of searching for solutions to the problems of contemporary transport networks and systems. The publication is therefore addressed to local authorities related to the planning and development of development strategies for selected areas with regard to transport (both in the urban and regional dimension) and to representatives of business and industry, as people directly involved in the implementation of traffic engineering solutions. The tips contained in individual sections of the publication allow to look at a given problem in an advanced way and facilitate the selection of the appropriate strategy (among others, in relation to the evaluation of BEV and FCHEV electric vehicles in the creation of a sustainable transport systems, development of ecological public transport on the example of selected cities, impact of drivers' waiting time on the gap acceptance at median, uncontrolled T-intersections). In turn, due to a new approach to theoretical models (including, inter alia, the application of genetic algorithms for the planning of urban rail transportation system, comprehensive estimate of life cycle costs of new technical systems using reliability verification algorithm, application and comparison of machine learning algorithms in traffic signals prediction), the publication also interests scientists and researchers carrying out research in this area.

Network and Traffic Engineering in Emerging Distributed Computing Applications Cengage Learning

In recent years the applications of advanced information technologies in the field of transportation have affected both road infrastructures and vehicle technologies. The development of advanced transport telematics systems and the implementation of a new generation of technological options in the transport environment have had a significant impact on improved traffic management, efficiency and safety. This volume contains contributions from scientific and academic centres which have been active in this field of research and provides an overview of applications of AI technology in the field of traffic control and management. The topics covered are: -- current status of AI in transport -- AI applications in traffic engineering -- in-vehicle AI

Traffic Engineering Handbook IGI Global

Recent research reveals that socioeconomic factors of the neighborhoods where road users live and where pedestrian-vehicle crashes occur are important in determining the severity of the crashes, with the former having a greater influence. Hence, road safety countermeasures, especially those focusing on the road users, should be targeted at these high risk neighborhoods. **Big Data Analytics in Traffic and Transportation Engineering: Emerging Research and Opportunities** is an essential reference source that discusses access to transportation and examines vehicle-pedestrian crashes, specifically in relation to socioeconomic factors that influence them, main predictors, factors that contribute to crash severity, and the enhancement of pedestrian safety measures. Featuring research on topics such as public transport, accessibility, and spatial distribution, this book is ideally designed for policymakers, transportation engineers, road safety designers, transport planners and managers, professionals, academicians, researchers, and public administrators.

Computational Models, Software Engineering, and Advanced Technologies in Air Transportation: Next Generation Applications IGI Global

Highly regarded for its clarity and depth of coverage, the bestselling **Principles of Highway Engineering and Traffic Analysis** provides a comprehensive introduction to the highway-related problems civil engineers encounter every day. Emphasizing practical applications and up-to-date methods, this book prepares students for real-world practice while building the essential knowledge base required of a transportation professional. In-depth coverage of highway engineering and traffic analysis, road vehicle performance, traffic flow and highway capacity, pavement design, travel demand, traffic forecasting, and other essential topics equips students with the understanding they need to analyze and solve the problems facing America's highway system. This new Seventh Edition features a new e-book format that allows for enhanced pedagogy, with instant access to solutions for selected problems. Coverage focuses exclusively on highway transportation to reflect the dominance of U.S. highway travel and the resulting employment opportunities, while the depth and scope of coverage is designed to prepare students for success on standardized civil engineering exams.

Nodes in Transport Networks – Research, Data Analysis and Modelling Cengage Learning

The publication delivers numerous valuable guidelines, particularly useful when making decisions related in the subject matter to road and rail nodes located in dense transport networks. The know-how displayed while discussing practical examples as well as the decision making support systems described in the publication will certainly attract the interest of those who daily face the challenge of seeking solutions to the operational and functional problems of transport nodes in contemporary transport networks and systems. This publication is dedicated to local authorities involved in planning and preparation of development strategies for specific transport-related issues (in both urban and regional areas) as well as to representatives of business and industry, being those who participate directly in the implementation of traffic engineering solutions. The guidelines provided in individual chapters of the publication will make it possible to address the given problem in an advanced manner and simplify the choice of appropriate strategies (including those related to synchronisation of road traffic streams, improving the capacity, road traffic safety analysis, evaluation of changes in drivers' behaviour on account of introducing countdown timers at signal-controlled intersections using UAV data, the influence of the type of traffic organisation on the behaviour of pedestrians at tram line crossings). On the other hand, since the publication also concerns the new approach to theoretical models (including potential places of integration of public transport with the railway network or the speed adviser for pedestrians enabling them to choose the optimal path at signal-controlled intersections), it should also attract the attention of researchers and scientists studying this body of problems. The publication entitled "Nodes in transport networks - research, data analysis and modelling" contains selected papers submitted to and presented at the 16th "Transport Systems. Theory and Practice" Scientific and Technical Conference organized by the Department of Transport Systems and Traffic Engineering at the Faculty of Transport of the Silesian University of Technology. The conference was held on 16-18 September 2019 in Katowice (Poland).

Recent Advances in Traffic Engineering for Transport Networks and Systems Springer

The publication contains numerous valuable guidelines one will find particularly useful while making decisions concerning development and improvement of transport systems. It provides a multitude of case studies connected with diverse problems of both technical and organisational nature. The knowledge displayed while discussing practical

examples as well as the decision making support systems described in the publication will certainly attract interest of those who face the challenge of seeking solutions to problems of contemporary transport systems on a daily basis. Consequently, this publication is dedicated to local authorities involved in planning and preparation of development strategies for specific transport related areas (in both urban and regional dimension) as well as to representatives of business and industry, being those who participate directly in the implementation of traffic engineering solutions. The guidelines provided in individual chapters of the publication will make it possible to address the given problem in a technologically advanced manner and simplify the choice of appropriate strategies (including those related to increasing competitiveness of public transport, integration of supply chains or route planning support by means of technologically advanced systems and applications). On the other hand, since the publication also concerns the new approach to theoretical models (including travel models, capacity models, road condition modelling and speed-volume relationship), it will raise interest among researchers and scientists studying this body of problems. The publication entitled **Contemporary Challenges of Transport Systems and Traffic Engineering** contains selected papers submitted to and presented at the 13th "Transport Systems. Theory and Practice" Scientific and Technical Conference organised by the Department of Transport Systems and Traffic Engineering at the Faculty of Transport of the Silesian University of Technology. The conference was held on 19-21 September 2016 in Katowice (Poland). More details at www.TSTP.polsl.pl

Logic-Driven Traffic Big Data Analytics Butterworth-Heinemann

Statistical Techniques for Transportation Engineering is written with a systematic approach in mind and covers a full range of data analysis topics, from the introductory level (basic probability, measures of dispersion, random variable, discrete and continuous distributions) through more generally used techniques (common statistical distributions, hypothesis testing), to advanced analysis and statistical modeling techniques (regression, ANOVA, and time series). The book also provides worked out examples and solved problems for a wide variety of transportation engineering challenges.

Demonstrates how to effectively interpret, summarize, and report transportation data using appropriate statistical descriptors Teaches how to identify and apply appropriate analysis methods for transportation data Explains how to evaluate transportation proposals and schemes with statistical rigor

Introduction to Traffic Engineering: A Manual for Data Collection and Analysis Traffic Engineering Handbook

Get a complete look into modern traffic engineering solutions **Traffic Engineering Handbook, Seventh Edition** is a newly revised text that builds upon the reputation as the go-to source of essential traffic engineering solutions that this book has maintained for the past 70 years. The updated content reflects changes in key industry standards, and shines a spotlight on the needs of all users, the design of context-sensitive roadways, and the development of more sustainable transportation solutions. Additionally, this resource features a new organizational structure that promotes a more functionally-driven, multimodal approach to planning, designing, and implementing transportation solutions. A branch of civil engineering, traffic engineering concerns the safe and efficient movement of people and goods along roadways. Traffic flow, road geometry, sidewalks, crosswalks, cycle facilities, shared lane markings, traffic signs, traffic lights, and more—all of these elements must be considered when designing public and private sector transportation solutions. Explore the fundamental concepts of traffic engineering as they relate to operation, design, and management Access updated content that reflects changes in key industry-leading resources, such as the Highway Capacity Manual (HCM), Manual on Uniform Traffic Control Devices (MUTCD), AASHTO Policy on Geometric Design, Highway Safety Manual (HSM), and Americans with Disabilities Act Understand the current state of the traffic engineering field Leverage revised information that homes in on the key topics most relevant to traffic engineering in today's world, such as context-sensitive roadways and sustainable transportation solutions **Traffic Engineering Handbook, Seventh Edition** is an essential text for public and private sector transportation practitioners, transportation decision makers, public officials, and even upper-level undergraduate and graduate students who are studying transportation engineering.

Traffic and Highway Engineering, Enhanced SI Edition Springer

This book offers a collection of valuable guidelines for making decisions concerning the future development of transport networks and traffic engineering. The decision-making support systems described here will certainly attract the interest of those who face the challenge of finding solutions to problems concerning modern transport systems on a daily basis. Consequently, the book is chiefly intended for local authorities involved in planning and preparing development strategies for specific transport-related areas (in both urban and regional contexts), as well as for representatives of business and industry who are directly engaged in the implementation of traffic engineering solutions. The guidelines provided in the respective chapters help to address the given problem soundly, and to simplify the selection of an appropriate strategy. The topics covered include increasing the competitiveness of public transport, the status quo of electric vehicle infrastructures worldwide, methods for calming urban traffic as an element of sustainable transport development, speed traffic zones and electric buses, car-sharing systems in Poland, a method for deconstructing the regional travel demand model, monitoring urban traffic using floating car data, problems of deliveries in urban agglomeration distribution systems, estimating the number of threatened people in case of fire in road tunnels, and road pavement evaluation using advanced tools. Since the book also considers new approaches to theoretical models (including traffic flow surveys and measurements, transport behaviors, human factors in traffic engineering, and road condition modeling), it will also appeal to researchers and scientists studying these problems. The book gathers selected papers presented at the 15th Scientific and Technical Conference "Transport Systems. Theory and Practice", organized by the Department of Transport Systems and Traffic Engineering, Silesian University of Technology in Katowice, Poland on September 17 – 19, 2018.

Traffic Engineering Handbook Elsevier

This book increases the level of knowledge on road safety contexts, issues and challenges; shares what can currently be done to address the variety of issues; and points to what needs to be done to make further gains in road safety.

Quality of Future Internet Services John Wiley & Sons

Mobility Patterns, Big Data and Transport Analytics provides a guide to the new analytical framework and its relation to big data, focusing on capturing, predicting, visualizing and controlling mobility patterns - a key aspect of transportation modeling. The book features prominent international experts who provide overviews on new analytical frameworks, applications and concepts in mobility analysis and transportation systems. Users will find a detailed, mobility 'structural' analysis and a look at the extensive behavioral characteristics of transport, observability requirements and limitations for realistic transportation applications and transportation systems analysis that are related to complex processes and phenomena. This book bridges the gap between big data, data science, and transportation systems analysis with a study of big data's impact on mobility and an introduction to the tools necessary to apply new techniques. The book covers in detail, mobility 'structural' analysis (and its dynamics), the extensive behavioral characteristics of transport, observability requirements and limitations for realistic transportation applications, and transportation systems

analysis related to complex processes and phenomena. The book bridges the gap between big data, data science, and Transportation Systems Analysis with a study of big data's impact on mobility, and an introduction to the tools necessary to apply new techniques. Guides readers through the paradigm-shifting opportunities and challenges of handling Big Data in transportation modeling and analytics Covers current analytical innovations focused on capturing, predicting, visualizing, and controlling mobility patterns, while discussing future trends Delivers an introduction to transportation-related information advances, providing a benchmark reference by world-leading experts in the field Captures and manages mobility patterns, covering multiple purposes and alternative transport modes, in a multi-disciplinary approach Companion website features videos showing the analyses performed, as well as test codes and data-sets, allowing readers to recreate the presented analyses and apply the highlighted techniques to their own data

[Traffic Engineering and QoS Optimization of Integrated Voice and Data Networks](#) John Wiley & Sons

Emerging Paradigms in Urban Mobility: Planning, Finance and Implementation explains the types of new urban mobility planning paradigms that are emerging throughout the world, along with their potential to transform the transportation landscape. As half of the world's 7 billion people now live in cities, thus causing severe road congestion, increased air pollution, energy insecurity and sustainability problems in cities and the planet itself, this book presents new paradigms that are emerging to address these problems, along with other topics of note, including economic efficiency, health, the well-being of cities and their residents, urban mobility transformations, and the role of social media. In addition, the book looks at Integrated Corridor Management and how it improves the people-moving performance of multi-modal transport systems in high demand urban corridors and how countries balance the mobility benefits of motorcycles with the environmental and safety threats they pose. Provides previously unpublished research on new approaches to integrating governance, the changing role of IT, and shared mobility initiatives Links transportation and land use, climate change, and poverty reduction and gender, going well beyond the technical issues of transport planning Highlights successful factors that have worked and how they can be tailored to different contexts Includes learning aids, such as case studies, text boxes and chapter openers and summaries

[Data Networks](#) "O'Reilly Media, Inc."

[Data-Driven Solutions to Transportation Problems](#) explores the fundamental principle of analyzing different types of transportation-related data using methodologies such as the data fusion model, the big data mining approach, computer vision-enabled traffic sensing data analysis, and machine learning. The book examines the state-of-the-art in data-enabled methodologies, technologies and applications in transportation. Readers will learn how to solve problems relating to energy efficiency under connected vehicle environments, urban travel behavior, trajectory data-based travel pattern identification, public transportation analysis, traffic signal control efficiency, optimizing traffic networks network, and much more. Synthesizes the newest developments in data-driven transportation science Includes case studies and examples in each chapter that illustrate the application of methodologies and technologies employed Useful for both theoretical and technically-oriented researchers

[Artificial Intelligence Applications to Traffic Engineering](#) Elsevier

The new edition of Garber and Hoel's best-selling text focuses on giving students insight into all facets of traffic and highway engineering. Students generally come to this course with little knowledge or understanding of the importance of transportation, much less of the extensive career opportunities within the field. Transportation is an extremely broad field, and courses must either cover all transportation modes or focus on specifics. While many topics can be covered with a survey approach, this often lacks sufficient depth and students leave the course without a full understanding of any of the fields. This text focuses exclusively on traffic and highway engineering beginning with a discussion of the pivotal role transportation plays in our society, including employment opportunities, historical impact, and the impact of transportation on our daily lives. This approach gives students a sense of what the field is about as well as an opportunity to consider some of its challenges. Later chapters focus on specific issues facing transportation engineers. The text uses pedagogical tools such as worked problems, diagrams and tables, reference material, and realistic examples to demonstrate how the material is applied. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

[Traffic and Highway Engineering, SI Edition](#) Elsevier

"This book aims at giving a complete panorama of the active and promising crossing area between traffic engineering and multi-agent system addressing both current status and challenging new ideas"--Provided by publisher.

[Nodes in Transport Networks – Research, Data Analysis and Modelling](#) IGI Global

[Traffic Engineering Handbook](#) John Wiley & Sons

[Data-Driven Solutions to Transportation Problems](#) Elsevier

"This book focuses on network management and traffic engineering for Internet and distributed computing technologies, as well as present emerging technology trends and advanced platforms"--Provided by publisher.

[Transportation Science](#) Springer Nature

This textbook provides a comprehensive and instructive coverage of vehicular traffic flow dynamics and modeling. It makes this fascinating interdisciplinary topic, which to date was only documented in parts by specialized monographs, accessible to a broad readership. Numerous figures and problems with solutions help the reader to quickly understand and practice the presented concepts. This book is targeted at students of physics and traffic engineering and, more generally, also at students and professionals in computer science, mathematics, and interdisciplinary topics. It also offers material for project work in programming and simulation at college and university level. The main part, after presenting different categories of traffic data, is devoted to a mathematical description of the dynamics of traffic flow, covering macroscopic models which describe traffic in terms of density, as well as microscopic many-particle models in which each particle corresponds to a vehicle and its driver. Focus chapters on traffic instabilities and model calibration/validation present these topics in a novel and systematic way. Finally, the theoretical framework is shown at work in selected applications such as traffic-state and travel-time estimation, intelligent transportation systems, traffic operations management, and a detailed physics-based model for fuel consumption and emissions.

[Emerald Group Publishing](#)

This book starts from the relationship between urban built environment and travel behavior and focuses on analyzing the origin of traffic phenomena behind the data through multi-source traffic big data, which makes the book unique and different from the previous data-driven traffic big data analysis literature. This book focuses on understanding, estimating, predicting, and optimizing mobility patterns. Readers can find multi-source traffic big data processing methods, related statistical analysis models, and practical case applications from this book. This book bridges the gap between traffic big data, statistical analysis models, and mobility pattern analysis with a systematic investigation of traffic big data's impact on mobility patterns and urban planning.

[Beautiful Data](#) IGI Global

In this insightful book, you'll learn from the best data practitioners in the field just how wide-ranging -- and beautiful -- working with data can be. Join 39 contributors as they explain how they developed simple and elegant solutions on projects ranging from the Mars lander to a Radiohead video. With Beautiful Data, you will: Explore the opportunities and challenges involved in working with the vast number of datasets made available by the Web Learn how to visualize trends in urban crime, using maps and data mashups Discover the challenges of designing a data processing system that works within the constraints of space travel Learn how crowdsourcing and transparency have combined to advance the state of drug research Understand how new data can automatically trigger alerts when it matches or overlaps pre-existing data Learn about the massive infrastructure required to create, capture, and process DNA data That's only a small sample of what you'll find in Beautiful Data. For anyone who handles data, this is a truly fascinating book. Contributors include: Nathan Yau Jonathan Follett and Matt Holm J.M. Hughes Raghu Ramakrishnan, Brian Cooper, and Utkarsh Srivastava Jeff Hammerbacher Jason Dykes and Jo Wood Jeff Jonas and Lisa Sokol Jud Valeski Alon Halevy and Jayant Madhavan Aaron Koblin with Valdean Klump Michal Migurski Jeff Heer Coco Krumme Peter Norvig Matt Wood and Ben Blackburne Jean-Claude Bradley, Rajarshi Guha,

Andrew Lang, Pierre Lindenbaum, Cameron Neylon, Antony Williams, and Egon Willighagen Lukas Biewald and Brendan O'Connor Hadley Wickham, Deborah Swayne, and David Poole Andrew Gelman, Jonathan P. Kastellec, and Yair Ghitza Toby Segaran