

2018 2020 Geometric Design Three Year Planner 2018 2020 Monthly Schedule Organizer Agenda Planner For The Next Three Years 36 Months Calendar 3 Year Diary 3 Year Calendar Logbook

Rivers form one of the lifelines in our society by providing essential services such as availability of fresh water, navigation, energy, ecosystem services, and flood conveyance. Because of this essential role, mankind has interfered continuously in order to benefit most and at the same time avoid adverse consequences such as flood risk and droughts. This has resulted in often highly engineered rivers with a narrow set of functions. In the last decades rivers are increasingly considered in a more holistic manner as a system with a multitude of interdependent processes. River research and engineering has therefore added to the river fundamentals also themes like ecohydraulics, consequences of climate change, and urbanisation. River Flow 2020 contains the contributions presented at the 10th conference on Fluvial Hydraulics, River Flow 2020, organised under the auspices of the Committee on Fluvial Hydraulics of the International Association for Hydro-Environment Engineering and Research (IAHR). What should have been a lively physical gathering of researchers, students and practitioners, was converted into an online event as the COVID-19 pandemic hindered international travelling and large gatherings of people. Nevertheless, the fluvial hydraulics community showed their interest and to be very much alive with a high number of participations for such event. Since its first edition in 2002, in Louvain-la-Neuve, this series of conferences has found a large and loyal audience in the river research and engineering community while being also attractive to the new researchers and young professionals. This is highlighted by the large number of contributions applying for the Coleman award for young researchers, and also by the number of applications and attendants to the Master Classes which are aimed at young researchers and students. River Flow 2020 aims to provide an updated overview of the ongoing research in this wide range of topics, and contains five major themes which are focus of research in the fluvial environment: river fundamentals, the digital river, the healthy river, extreme events and rivers under pressure. Other highlights of River Flow 2020 include the substantial number of interdisciplinary subthemes and sessions of special interest. The contributions will therefore be of interest to academics in hydraulics, hydrology and environmental engineering as well as practitioners that would like to be updated about the newest findings and hot themes in river research and engineering.

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“Engineering Fluid Dynamics 2018”. The topic of engineering fluid dynamics includes both experimental as well as computational studies. Of special interest were submissions from the fields of mechanical, chemical, marine, safety, and energy engineering. We welcomed both original research articles as well as review articles. After one year, 28 papers were submitted and 14 were accepted for publication. The average processing time was 37.91 days. The authors had the following geographical

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distribution: China (9); Korea (3); Spain (1); and India (1). Papers covered a wide range of topics, including analysis of fans, turbines, fires in tunnels, vortex generators, deep sea mining, as well as pumps.

This book highlights the latest innovations and applications in robotics, as presented by leading international researchers and engineers at the ROMANSY 2020, the 23rd CISM IFToMM Symposium on Theory and Practice of Robots and Manipulators. The ROMANSY symposium is the first established conference that focuses on robotics theory and research, rather than industrial aspects. Bringing together researchers from a broad range of countries, the symposium is held bi-annually and plays a vital role in the development of the theory and practice of robotics, as well as the mechanical sciences. ROMANSY 2020 marks the 23rd installment in a series that began in 1973. The event was also the first topic-specific conference of the IFToMM, though not exclusively intended for the IFToMM community.

The intention of this collection agrees with the purposes of the homonymous mini-symposium (MS) at ICIAM-2019, which were to overview the essentials of geometric calculus (GC) formalism, to report on state-of-the-art applications showcasing its advantages and to explore the bearing of GC in novel approaches to deep learning. The first three contributions, which correspond to lectures at the MS, offer perspectives on recent advances in the application GC in the areas of robotics, molecular geometry, and medical imaging. The next three, especially invited, hone the expressiveness of GC in orientation measurements under different metrics, the treatment of contact elements, and the investigation of efficient computational methodologies. The last two, which also correspond to lectures at the MS, deal with two aspects of deep learning: a presentation of a concrete quaternionic convolutional neural network layer for image classification that features contrast invariance and a general overview of automatic learning aimed at steering the development of neural networks whose units process elements of a suitable algebra, such as a geometric algebra. The book fits, broadly speaking, within the realm of mathematical engineering, and consequently, it is intended for a wide spectrum of research profiles. In particular, it should bring inspiration and guidance to those looking for materials and problems that bridge GC with applications of great current interest, including the auspicious field of GC-based deep neural networks.

INCLUDES: 1 three-year planner for 2018 to 2020 including December 2017 and January 2021. Cover is high gloss finish; inner pages are printed on thick acid-free, high quality durable paper. Perfect bound to secure pages for the next three years and beyond. **USEFUL & HANDY GRID BOX DESIGN:** Each monthly page has a grid design which affords enough room (large date boxes) to record and plot events for the future at a glance. Imagine, three calendars in one place with recording space. Functional and efficient, fits perfectly beside a desk, keyboard, nightstand, affords for daily notes. **PLAN AHEAD:** Use the 3-year planner to arrange and co-ordinate your important events. You will be sure never to forget important dates with this simple and easy to carry around planner. Perfect alternative or supplement to your phone or computer. **GOAL SETTING:** A goal without a deadline is a dream, says the old adage; so go ahead and set your goals, use the planner to keep you in check so that you will meet your deadline. Inspire action, remove procrastination and get things done with the Three Year Planner. **ESSENTIAL FOR:** Family appointments, Planning ahead,

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Scheduling of appointments and events, Volunteer support, Caring for the elderly in recording their appointments, medication, perfect for 'come-back' medical visits, upcoming weddings, anniversaries, holiday planning, work schedules, booking entertainment, business planning, long-term note taking, makes for easing reporting. SIZE: 8.5 X 11 inches.

This book examines innovation in the fields of computer engineering and networking, and explores important, state-of-the-art developments in areas such as artificial intelligence, machine learning, information analysis and communication. It gathers papers presented at the 8th International Conference on Computer Engineering and Networks (CENet2018), held in Shanghai, China on August 17–19, 2018. • Explores emerging topics in computer engineering and networking, along with their applications • Discusses how to improve productivity by using the latest advanced technologies • Examines innovation in the fields of computer engineering and networking

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.

Simply stated, geography studies the locations of things and the explanations that underlie spatial distributions. Profound forces at work throughout the world have made geographical knowledge increasingly important for understanding numerous human dilemmas and our capacities to address them. With more than 1,200 entries, the Encyclopedia of Geography reflects how the growth of geography has propelled a demand for intermediaries between the abstract language of academia and the ordinary language of everyday life. The six volumes of this encyclopedia encapsulate a diverse array of topics to offer a comprehensive and useful summary of the state of the discipline in the early 21st century. Key Features Gives a concise historical sketch of geography's long, rich, and fascinating history, including human geography, physical geography, and GIS Provides succinct summaries of trends such as globalization, environmental destruction, new geospatial technologies, and cyberspace Decomposes geography into the six broad subject areas: physical geography; human geography; nature and society; methods, models, and GIS; history of geography; and geographer biographies, geographic organizations, and important social movements Provides hundreds of color illustrations and images that lend depth and realism to the text Includes a special map section Key Themes Physical Geography Human Geography Nature and Society Methods, Models, and GIS People, Organizations, and Movements

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History of Geography This encyclopedia strategically reflects the enormous diversity of the discipline, the multiple meanings of space itself, and the diverse views of geographers. It brings together the diversity of geographical knowledge, making it an invaluable resource for any academic library.

This book presents selected papers from the 5th International Conference on Mechanical, Manufacturing and Plant Engineering (ICMMPE 2019), held in Kuala Lumpur, Malaysia. It highlights the latest advances in the area, brings together researchers and professionals in the field and provides a valuable platform for exchanging ideas and fostering collaboration. Joining technologies could be change to manufacturing technologies. Addressing real-world problems concerning joining technologies that are at the heart of various manufacturing sectors, the respective papers present the outcomes of the latest experimental and numerical work on problems in soldering, arc welding and solid-state joining technologies. technologies. technologies. technologies. technologies. technologies. technologies. technologies. technologies. technologies.

Unconventional energy sources have gained and will continue to gain an increasing share of energy systems around the world. Today, hydrogen is recognized as a non-polluting energy carrier because it does not contribute to global warming if it is produced from renewable sources. Hydrogen is already part of today's chemical industry, but as an energy source, its rare advantages can only be obtained with the help of technologies. Currently, the fuel cell is considered the cleanest sustainable energy. With the development of fuel cells, hydrogen-based energy generation becomes a reality. Hydrogen Fuel Cell Technology for Stationary Applications is an essential publication that focuses on the advantages of hydrogen as a primary energy center and addresses its use in the sustainable future of stationary applications. While highlighting a broad range of topics including cost expectations, production methods, and social impact, this publication explores all aspects of the implementation and dissemination of fuel cell technology in the hope of establishing a sustainable marketplace for it. This book is ideally designed for fuel cell manufacturers, architects, electrical engineers, civil engineers, environmental engineers, advocates, manufacturers, mechanics, researchers, academicians, and students.

International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies publishes a wide spectrum of research and technical articles as well as reviews, experiments, experiences, modelings, simulations, designs, and innovations from engineering, sciences, life sciences, and related disciplines as well as interdisciplinary/cross-disciplinary/multidisciplinary subjects. Original work is required. Article submitted must not be under consideration of other publishers for publications. This book focuses primarily on the nature-inspired approach for designing smart applications. It includes several implementation paradigms such as design and path planning of wireless network, security mechanism and implementation for dynamic as well as static nodes, learning method of cloud computing, data exploration and management, data analysis and optimization, decision taking in conflicting environment, etc. The book fundamentally highlights the recent research advancements in the field of engineering and science.

This book is the essential guide to the pedagogical and industry-inspired considerations that must shape how BIM is taught and learned. It will help academics and professional

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educators to develop programmes that meet the competences required by professional bodies and prepare both graduates and existing practitioners to advance the industry towards higher efficiency and quality. To date, systematic efforts to integrate pedagogical considerations into the way BIM is learned and taught remain non-existent. This book lays the foundation for forming a benchmark around which such an effort is made. It offers principles, best practices, and expected outcomes necessary to BIM curriculum and teaching development for construction-related programs across universities and professional training programmes. The aim of the book is to: Highlight BIM skill requirements, threshold concepts, and dimensions for practice; Showcase and introduce tried-and-tested practices and lessons learned in developing BIM-related curricula from leading educators; Recognise and introduce the baseline requirements for BIM education from a pedagogical perspective; Explore the challenges, as well as remedial solutions, pertaining to BIM education at tertiary education; Form a comprehensive point of reference, covering the essential concepts of BIM, for students; Promote and integrate pedagogical consideration into BIM education. This book is essential reading for anyone involved in BIM education, digital construction, architecture, and engineering, and for professionals looking for guidance on what the industry expects when it comes to BIM competency.

This two-volume book constitutes the refereed proceedings of the 3rd International Conference on Multimedia Technology and Enhanced Learning, ICMTTEL 2021, held in April 2021. Due to the COVID-19 pandemic the conference was held virtually. The 97 revised full papers have been selected from 208 submissions. They describe new learning technologies which range from smart school, smart class and smart learning at home and which have been developed from new technologies such as machine learning, multimedia and Internet of Things.

“Neutrosophic Sets and Systems” has been created for publications on advanced studies in neutrosophy, neutrosophic set, neutrosophic logic, neutrosophic probability, neutrosophic statistics that started in 1995 and their applications in any field, such as the neutrosophic structures developed in algebra, geometry, topology, etc. In this issue: A hybrid Model Using MCDM Methods and Bipolar Neutrosophic Sets for Select Optimal Wind Turbine: Case Study in Egypt, Graphical Representation of Type-2 Neutrosophic sets, PESTEL Analysis to Identify Key Barriers to Smart Cities Development in India.

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experts working at the interface between advanced computing and modern engineering challenges. Many engineering tasks require open-world resolutions to support multi-actor collaboration, coping with approximate models, providing effective engineer-computer interaction, search in multi-dimensional solution spaces, accommodating uncertainty, including specialist domain knowledge, performing sensor-data interpretation and dealing with incomplete knowledge. While results from computer science provide much initial support for resolution, adaptation is unavoidable and most importantly, feedback from addressing engineering challenges drives fundamental computer-science research. Competence and knowledge transfer goes both ways. Der 27. Internationale EG-ICE Workshop 2020 bringt internationale Experten zusammen, die an der Schnittstelle zwischen fortgeschrittener Datenverarbeitung und modernen technischen Herausforderungen arbeiten. Viele ingenieurwissenschaftliche Aufgaben erfordern Open-World-Resolutionen, um die Zusammenarbeit mehrerer Akteure zu unterstützen, mit approximativen Modellen umzugehen, eine effektive Interaktion zwischen Ingenieur und Computer zu ermöglichen, in mehrdimensionalen Lösungsräumen zu suchen, Unsicherheiten zu berücksichtigen, einschließlich fachspezifischen Domänenwissens, Sensordateninterpretation durchzuführen und mit unvollständigem Wissen umzugehen. Während die Ergebnisse aus der Informatik anfänglich viel Unterstützung für die Lösung bieten, ist eine Anpassung unvermeidlich, und am wichtigsten ist, dass das Feedback aus der Bewältigung technischer Herausforderungen die computer-wissenschaftliche Grundlagenforschung vorantreibt. Kompetenz und Wissenstransfer gehen in beide Richtungen. "The volume reports on interdisciplinary discussions and interactions between theoretical research and practical studies on geometric structures and their applications in architecture, the arts, design, education, engineering, and mathematics. These related fields of research can enrich each other and renew their mutual interest in these topics through networks of shared inspiration, and can ultimately enhance the quality of geometry and graphics education. Particular attention is dedicated to the contributions that women have made to the scientific community and especially mathematics. The book introduces engineers, architects and designers interested in computer applications, graphics and geometry to the latest advances in the field, with a particular focus on science, the arts and mathematics education"-- Prové de l'editor.

Computer Aided Geometric Design covers the proceedings of the First International Conference on Computer Aided Geometric Design, held at the University of Utah on March 18-21, 1974. This book is composed of 15 chapters and starts with reviews of the properties of surface patch equation and the use of computers in geometrical design. The next chapters deal with the principles of smooth interpolation over triangles and without twist constraints, as well as the graphical representation of surfaces over triangles and rectangles. These topics are followed by discussions of the B-spline curves and surfaces; mathematical

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and practical possibilities of UNISURF; nonlinear splines; and some piecewise polynomial alternatives to splines under tension. Other chapters explore the smooth parametric surfaces, the space curve as a folded edge, and the interactive computer graphics application of the parametric bi-cubic surface to engineering design problems. The final chapters look into the three-dimensional human-machine communication and a class of local interpolating splines. This book will prove useful to design engineers.

The Light Metals symposia at the TMS Annual Meeting & Exhibition present the most recent developments, discoveries, and practices in primary aluminum science and technology. The annual Light Metals volume has become the definitive reference in the field of aluminum production and related light metal technologies. The 2021 collection includes contributions from the following symposia: · Alumina and Bauxite · Aluminum Alloys, Processing, and Characterization · Aluminum Reduction Technology · Aluminum Reduction Technology Across the Decades: An LMD Symposium Honoring Alton T. Tabereaux, Halvor Kvande and Harald A. Øye · Cast Shop Technology · Electrode Technology for Aluminum Production .

The Fourth Edition of Dudley's Handbook of Practical Gear Design and Manufacture is the definitive reference guide to gear design, production, and applications. Using a pragmatic approach, the book provides gear manufacturing methods for high-, medium-, and low-volume production. Updated throughout to reflect cutting-edge research, this edition includes new contributions from experts in the field. Providing a clear overview of the foundations of advanced gear systems, the book contains new material on the potential of technologies such as high-performance plastic gears alongside issues that can be encountered. The book also includes innovative chapters discussing topics such as involute gear drives and gear strength calculation, with new regulations such as ISO 6336 in mind. Using modern technologies such as powder metallurgy and additive manufacturing, all the necessary information to reduce gear cost is provided. Additionally, gear micro-geometry modifications and planetary gear designs are discussed. FEATURES Provides an up-to-date, single-source reference for all aspects of the gear industry Presents an integrated approach to gear design and manufacture Includes new coverage of direct gear design and ready-to-use gear design Contains coverage of finite element analysis, gear vibration, load ratings, and gear failures The book includes comprehensive tables and references, making this the definitive guide for all those in the field of gear technology, from industry professionals to undergraduate and postgraduate engineering students.

Besides their intrinsic mathematical interest, geometric partial differential equations (PDEs) are ubiquitous in many scientific, engineering and industrial applications. They represent an intellectual challenge and have received a great deal of attention recently. The purpose of this volume is to provide a missing reference consisting of self-contained and comprehensive presentations. It includes basic ideas, analysis and applications of state-of-the-art fundamental algorithms for the approximation of geometric PDEs together with their impacts in a variety of fields within mathematics, science, and engineering. About every aspect of computational geometric PDEs is discussed in this and a companion volume. Topics in this volume include stationary and time-dependent surface PDEs for geometric flows, large deformations of nonlinearly geometric plates and rods, level set and phase field methods and applications, free boundary problems, discrete Riemannian calculus and morphing, fully nonlinear PDEs including Monge-Ampere equations, and PDE constrained optimization Each chapter is a

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complete essay at the research level but accessible to junior researchers and students. The intent is to provide a comprehensive description of algorithms and their analysis for a specific geometric PDE class, starting from basic concepts and concluding with interesting applications. Each chapter is thus useful as an introduction to a research area as well as a teaching resource, and provides numerous pointers to the literature for further reading. The authors of each chapter are world leaders in their field of expertise and skillful writers. This book is thus meant to provide an invaluable, readable and enjoyable account of computational geometric PDEs.

The subject of the first volume is the issues related to the components and systems of transport machines. Motor vehicle systems tests are described: suspension dampers, steering, brakes and differentials. Design issues of machine elements operating in extreme conditions are also addressed. The possibility of increasing wear resistance in high-speed and ethanol-powered engines is analyzed. An extensive part covers the dynamics of hydraulic, electro-hydraulic and mechanical-hydraulic systems and the issues of diagnostics and automatic control in such systems. Aspects of the regional system of motor transport, public transport and transport and logistics of agricultural machinery are also addressed. The volume also examines selected technical and economic issues of gas transport. Topics on modelling of production processes with the transport of products are a complement.

This book provides practical knowledge on different aspects of information and knowledge management in businesses. For enterprises/businesses those intend to remain prosperous and prolific, it is critically important to share best practices, ensure efficient information flow across company, capturing shared knowledge centrally, and communicate compliance rules, i.e. managing competently information in general. It enables faster and better decisions by helping employees' to build a strong expertise and by avoiding duplicated projects. Thus, the second volume of this series subline continues to explore different aspects of information and knowledge handling as well as doing business with information. We survey further the key aspects of managerial implications of the informational business. The novel methodologies and practices for the business information processing as well as application of mathematical models to the business analytics and efficient management are examined.

This book examines the development and technical progress of self-driving vehicles in the context of the Vision Zero project from the European Union, which aims to eliminate highway system fatalities and serious accidents by 2050. It presents the concept of Autonomous Driving (AD) and discusses its applications in transportation, logistics, space, agriculture, and industrial and home automation.

This book reports on topics at the interface between manufacturing and materials engineering, with a special emphasis on product design and advanced manufacturing processes, intelligent solutions for Industry 4.0, covers topics in ICT for engineering education, describes the numerical simulation and experimental studies of milling, honing, burnishing, grinding, boring, and turning, as well as the development and implementation of advanced materials. Based on the 4th International Conference on Design, Simulation, Manufacturing: The Innovation Exchange (DSMIE-2021), held on June 8-11, 2021, in Lviv, Ukraine, this first volume of a 2-volume set provides academics and professionals with extensive information on trends, technologies, challenges and practice-oriented experience in the above-mentioned areas.

Climate Change Adaptation for Transportation Systems examines the international state of knowledge on climate change and weather and their potential impacts on the planning, design and serviceability of transportation networks. The book describes alternative frameworks for adapting to climate change in the planning, provision and management of transportation systems. It discusses methods and models for including climate and weather factors in planning and design for use in transportation asset systems under risk and uncertainty. Giving specific attention to road, rail, ports and harbors, the book provides users with the tools they

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need in decision-making approaches where there is uncertainty. Examines the impact of climate change and extreme weather on the performance and serviceability of transportation assets Explores the issues, methods, frameworks, models and techniques for assessing transportation systems' performance, including considerations for climate and the environment Provides case studies from around the world to illustrate methods, covering a wide range of climatic conditions, considerations and approaches for transportation planners

International Journal of Neutrosophic Science (IJNS) is a peer-review journal publishing high quality experimental and theoretical research in all areas of Neutrosophic and its Applications. IJNS is published quarterly. IJNS is devoted to the publication of peer-reviewed original research papers lying in the domain of neutrosophic sets and systems. Papers submitted for possible publication may concern with foundations, neutrosophic logic and mathematical structures in the neutrosophic setting. Besides providing emphasis on topics like artificial intelligence, pattern recognition, image processing, robotics, decision making, data analysis, data mining, applications of neutrosophic mathematical theories contributing to economics, finance, management, industries, electronics, and communications are promoted.

The seven volumes LNCS 12249-12255 constitute the refereed proceedings of the 20th International Conference on Computational Science and Its Applications, ICCSA 2020, held in Cagliari, Italy, in July 2020. Due to COVID-19 pandemic the conference was organized in an online event. Computational Science is the main pillar of most of the present research, industrial and commercial applications, and plays a unique role in exploiting ICT innovative technologies. The 466 full papers and 32 short papers presented were carefully reviewed and selected from 1450 submissions. Apart from the general track, ICCSA 2020 also include 52 workshops, in various areas of computational sciences, ranging from computational science technologies, to specific areas of computational sciences, such as software engineering, security, machine learning and artificial intelligence, blockchain technologies, and of applications in many fields.

In 1920, state highway engineers, federal officials, and experts from academia were among a small group convened by the National Academy of Sciences to confront the problems of the highway. The public was entrusting them with billions of dollars for good roads, and World War I had proved the feasibility of moving freight long distances by truck. But even new highways were crumbling. They turned to research for solutions. The founders of the Transportation Research Board (TRB) and the generations that followed took on problems such as safety, social equity, and environmental issues. They embraced "total transportation," adapting their highway research model to urban transportation and then applying it to rail, marine, and aviation modes. Today TRB convenes thousands of researchers, practitioners, and administrators every year to advise the government, solve practical problems, foster innovation, and stimulate new research. In *The Transportation Research Board, 1920â€"2020: Everyone Interested Is Invited*, Sarah Jo Peterson tells the story of how people and institutions created and have continued to shape TRB. In a compelling narrative

accompanied by more than 150 images exploring the history of transportation and research, she argues that TRB can be best understood as an infrastructure—one that people purposely designed and devotedly maintained. Despite TRB's institutional complexity, its unique mission, the vast collection of acronyms in its orbit, and the significant changes to the organization in its first 100 years, Dr. Peterson provides a view from 30,000 feet, deftly describing the social, political, and economic context in which transportation (and TRB) functioned. At the same time, she attends to details of the key events, individuals, and human motivations that shaped TRB's evolution. The author's skills as a historian, her experience in the transportation field, and her manifest ability to tell a good story have produced a book that transportation professionals of all stripes—and, for that matter, anyone interested in the history of transportation in the United States—should find both engaging and informative and an essential addition to their library.

Advancement in design and construction to embrace the impact of rapid global urbanization growth in infrastructure development is inevitable. This proceedings volume includes many smart and green solutions for civil infrastructures, incorporating geotechnical and engineering geology aspects. The articles presented in this volume are attempts made by the researchers and practitioners to address many geotechnical challenges, based on the state-of-the-art practices, innovative technologies, new research results and case histories in construction and design towards safer and cost effective infrastructures. This volume covers a wide range of topics with direct relevance to people within the broad field of geomechanics, including consultants, contractors, academics, materials suppliers and the owners and operators of civil infrastructures. Many papers associated with numerical modeling of transport infrastructure, advanced soil and rock testing, field monitoring, tunnelling, expansive soils, geo-center motion, triaxial and dynamic testing, piles etc. are included. The content is based on the contributions to the 6th GeoChina International Conference on Civil & Transportation Infrastructures: From Engineering to Smart & Green Life Cycle Solutions -- Nanchang, China, 2021.

Before we can resolve or avoid an ethical problem, we need to understand what makes something ethical. *Practical and Professional Ethics: Key Concepts* introduces us to a series of real cases where the stakes can be high, the situations complex, and the ethical issues often difficult to see. Drawing on examples from medicine, law, science, and engineering, it offers a practical approach to thinking critically about the ethical problems that occur in our lives and professions, teaching us how to: § focus on the ethical aspects of any situation § distinguish between different kinds of ethical problems § tailor our response to the kind of problem we face § construct arguments we can plausibly attribute to those involved § identify the role of power, discretion and moral blindness By guiding us through the concepts, issues and skills at play when we face an ethical problem, we learn how to find a solution. Ideal for students or

professionals, this book provides the grounding required to become a more complex moral thinker, a quality that can be applied in a number of fields and jobs.

This book covers different, current research directions in the context of variational methods for non-linear geometric data. Each chapter is authored by leading experts in the respective discipline and provides an introduction, an overview and a description of the current state of the art. Non-linear geometric data arises in various applications in science and engineering. Examples of nonlinear data spaces are diverse and include, for instance, nonlinear spaces of matrices, spaces of curves, shapes as well as manifolds of probability measures.

Applications can be found in biology, medicine, product engineering, geography and computer vision for instance. Variational methods on the other hand have evolved to being amongst the most powerful tools for applied mathematics. They involve techniques from various branches of mathematics such as statistics, modeling, optimization, numerical mathematics and analysis. The vast majority of research on variational methods, however, is focused on data in linear spaces. Variational methods for non-linear data is currently an emerging research topic. As a result, and since such methods involve various branches of mathematics, there is a plethora of different, recent approaches dealing with different aspects of variational methods for nonlinear geometric data. Research results are rather scattered and appear in journals of different mathematical communities. The main purpose of the book is to account for that by providing, for the first time, a comprehensive collection of different research directions and existing approaches in this context. It is organized in a way that leading researchers from the different fields provide an introductory overview of recent research directions in their respective discipline. As such, the book is a unique reference work for both newcomers in the field of variational methods for non-linear geometric data, as well as for established experts that aim at to exploit new research directions or collaborations. Chapter 9 of this book is available open access under a CC BY 4.0 license at link.springer.com.

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