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 TOWARDS ACHIEVING TOTAL SUSTAINABILITY
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 Applications of Artificial Intelligence in Tunnelling and Underground Space Technology
 The Global Oil Market
 Data-Driven Analytics for the Geological Storage of CO₂
 Applied Energy
 The Changing Dynamics of Energy in the Middle East [Two Volumes]
 Proceedings of the 2nd International Conference (ICITG) Durham, UK
 Improving Deliverability in Gas Storage Fields by Identifying the Timing and Sources of Damage Using Smart Well Technology
 Risks and Uncertainties
 Radically Human
 BDCPS 2019, 28-29 December 2019, Shenyang, China
 Proceedings of the 4th International Conference on Multimedia Technology, Sydney, Australia, 28-30 March 2015
 NexGen Technologies for Mining and Fuel Industries (Volume I and II)
 Technical, Economic and Legal Framework
 Railway Engineering Design and Operation

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LANE BAKER

Technology Development for Army Unmanned Ground Vehicles Greenwood Publishing Group

This book is at the center of the UN goals of combining environment and economic development with new technologies. First, sustainability in mining is defined as a process of transformation. This is followed by an outlook on the aspects of safety, economy, environmental impact and digital transformation. The book includes a discussion of new aspects such as the problem of liability for mining damages regarding climate change in Peru. Specific technical issues in smart mining are covered as well, such as underground localization systems based on ultra-wide band radio and inertial navigation, or the use of thermal imaging for roof crack detection. In addition, the characterization of material flows, subsurface hydrogen-storage systems and the prediction of mining induced subsidence and uplift are dealt with. The Sustainable Smart Mining and Energy Yearbook is not only aimed at researchers professionals, but at all who want to get an overview of the important technical and legal topics in this field.

Robot Intelligence Technology and Applications 3 Springer Nature

This book presents research results of PowerWeb, TU Delft's consortium for interdisciplinary research on intelligent, integrated energy systems and their role in markets and institutions. In operation since 2012, it acts as a host and information platform for a growing number of projects, ranging from single PhD student projects up to large integrated and international research programs. The group acts in an inter-faculty fashion and brings together experts from electrical engineering, computer science, mathematics, mechanical engineering, technology and policy management, control engineering, civil engineering, architecture, aerospace engineering, and industrial design. The interdisciplinary projects of PowerWeb are typically associated with either of three problem domains: Grid Technology, Intelligence and Society. PowerWeb is not limited to electricity: it bridges heat, gas, and other types of energy with markets, industrial processes, transport, and the built environment, serving as a singular entry point for industry to the University's knowledge. Via its Industry Advisory Board, a steady link to business owners, manufacturers, and energy system operators is provided.

Risk Assessment and Security for Pipelines, Tunnels, and Underground Rail and Transit Operations Springer Nature

This book gathers selected papers from the 8th International Field Exploration and Development Conference (IFEDC 2018) and addresses a broad range of topics, including: Reservoir Surveillance and Management, Reservoir Evaluation and Dynamic Description, Reservoir Production Stimulation and EOR, Ultra-Tight Reservoirs, Unconventional Oil and Gas Resources Technology, Oil and Gas Well Production Testing, and Geomechanics. In brief, the papers introduce readers to upstream technologies used in oil & gas development, the main principles of the process, and various related design technologies. The conference not only provided a platform to exchange experiences, but also promoted the advancement of scientific research in oil & gas exploration and production. The book is chiefly intended for industry experts, professors, researchers, senior engineers, and enterprise managers.

The Fundamentals, Simulation, and Management of Conventional and Unconventional Recoveries Springer

Disaster management is an imperative area of concern for society on a global scale. Understanding how to best utilize information and communication technology to help manage emergency and disaster situations will lead to more effective advances and innovations in this important field. Smart Technologies for Emergency Response and Disaster Management is a

pivotal reference source that overviews current difficulties, challenges, and solutions that technology must adapt to in crisis situations. Highlighting pertinent topics such as network recovery, evacuation design, sensing technologies, and video technology, this publication is ideal for engineers, professionals, academicians, and researchers interested in discovering more about emerging technologies in crisis management.

Sustainability and Capability Development CRC Press

The papers in these two volumes were presented at the International Conference on “NexGen Technologies for Mining and Fuel Industries” [NxGnMiFu-2017] in New Delhi from February 15-17, 2017, organized by CSIR-Central Institute of Mining and Fuel Research, Dhanbad, India. The proceedings include the contributions from authors across the globe on the latest research on mining and fuel technologies. The major issues focused on are: Innovative Mining Technology, Rock Mechanics and Stability Analysis, Advances in Explosives and Blasting, Mine Safety and Risk Management, Computer Simulation and Mine Automation, Natural Resource Management for Sustainable Development, Environmental Impacts and Remediation, Paste Fill Technology and Waste Utilisation, Fly Ash Management, Clean Coal Initiatives, Mineral Processing and Coal Beneficiation, Quality Coal for Power Generation and Conventional and Non-conventional Fuels and Gases. This collection of contemporary articles contains unique knowledge, case studies, ideas and insights, a must-have for researchers and engineers working in the areas of mining technologies and fuel sciences.

Cyber-Enabled Intelligence Springer

This book covers the tunnel boring machine (TBM) performance classifications, empirical models, statistical and intelligent-based techniques which have been applied and introduced by the researchers in this field. In addition, a critical review of the available TBM performance predictive models will be discussed in details. Then, this book introduces several predictive models i.e., statistical and intelligent techniques which are applicable, powerful and easy to implement, in estimating TBM performance parameters. The introduced models are accurate enough and they can be used for prediction of TBM performance in practice before designing TBMs.

Big Data Analytics for Cyber-Physical System in Smart City Springer Science & Business Media

Reservoir Engineering focuses on the fundamental concepts related to the development of conventional and unconventional reservoirs and how these concepts are applied in the oil and gas industry to meet both economic and technical challenges. Written in easy to understand language, the book provides valuable information regarding present-day tools, techniques, and technologies and explains best practices on reservoir management and recovery approaches. Various reservoir workflow diagrams presented in the book provide a clear direction to meet the challenges of the profession. As most reservoir engineering decisions are based on reservoir simulation, a chapter is devoted to introduce the topic in lucid fashion. The addition of practical field case studies make Reservoir Engineering a valuable resource for reservoir engineers and other professionals in helping them implement a comprehensive plan to produce oil and gas based on reservoir modeling and economic analysis, execute a development plan, conduct reservoir surveillance on a continuous basis, evaluate reservoir performance, and apply corrective actions as necessary. Connects key reservoir fundamentals to modern engineering applications Bridges the conventional methods to the unconventional, showing the differences between the two processes Offers field case studies and workflow diagrams to help the reservoir professional and student develop and sharpen management skills for both conventional and unconventional reservoirs

Computers in Railways XVI IGI Global

Sustainable Oil and Gas Development Series: Drilling Engineering delivers research materials and emerging technologies that conform sustainability drilling criteria. Starting with ideal zero-waste solutions in drilling and long-term advantages, the reference discusses the sustainability approach through the use of non-linear solutions and works its way through the most conventional practices and procedures used today. Step-by-step formulations and examples are provided to demonstrate how to look at conventional practices versus sustainable approaches with eventually diverging towards a more sustainable alternative. Emerging technologies are covered and detailed sustainability analysis is included. Economic considerations, analysis, and long-term consequences, focusing on risk management round out the with conclusions and a extensive glossary. Sustainable Oil and Gas Development Series: Drilling Engineering gives today’s petroleum and drilling engineers a guide how to analyze and evaluate their operations in a more environmentally-driven way. Proposes sustainable technical criteria and strategies for today’s most common drilling practices such as horizontal drilling, managed pressure drilling, and unconventional shale activity

Discusses economic benefits and development challenges to invest in environmentally-friendly operations Highlights the most recent research, analysis, and challenges that remain including global optimization

Volume III Springer Nature

The book provides an advanced vision and trends of computational intelligence in cyberspace and cyber-enabled spaces. It reviews architectures and models, as well as state-of-the-art computational and interpretation capabilities for social, industrial, and multimedia applications. Cyber-enabled intelligence involves the design and development of intelligent and innovative application scenarios in social networks, computer vision, multimedia, and image processing. Application scenarios can also cover the applicability of intelligent sensing, data collection and predictive analysis in Internet of Things.

Oilfield Review WIT Press

This report summarizes the work performed under contract DE-FC26-03NT41743. The primary objective of this study was to develop tools that would allow Underground Gas Storage (UGS) operators to use wellhead electronic flow measurement (EFM) data to quickly and efficiently identify trends in well damage over time, thus aiding in the identification of potential causes of the damage. Secondary objectives of this work included: (1) To assist UGS operators in the evaluation of hardware and software requirements for implementing an EFM system similar to the one described in this report, and (2) To provide a cost-benefit analysis framework UGS operators can use to evaluate economic benefits of installing wellhead EFM systems in their particular fields. Assessment of EFM data available for use, and selection of the specific study field are reviewed. The various EFM data processing tasks, including data collection, organization, extraction, processing, and interpretation are discussed. The process of damage assessment via pressure transient analysis of EFM data is outlined and demonstrated, including such tasks as quality control, semi-log analysis, and log-log analysis of pressure transient test data extracted from routinely collected EFM data. Output from pressure transient test analyses for 21 wells is presented, and the interpretation of these analyses to determine the timing of damage development is demonstrated using output from specific study wells. Development of processing and interpretation modules to handle EFM data interpretation in horizontal wells is also presented and discussed. A spreadsheet application developed to aid underground gas storage operators in the selection of EFM equipment is presented, discussed, and used to determine the cost benefit of installing EFM equipment in a gas storage field. Recommendations for future work related to EFM in gas storage fields are presented and discussed.

Intelligent Integrated Energy Systems CRC Press

Forming the 16th volume from this successful series, this book contains papers from the 16th International Conference on Railway Engineering Design and Operation. The included papers are a collection of works from researchers, academics and practitioners involved in railway engineering. There is a continuing need to update the use of advanced systems, promoting their general awareness throughout the management, design, manufacture and operation of railways and other emerging passenger, freight and transit systems. By emphasising the use of computer systems in advanced railway engineering, this book contributes to this goal. These research studies will be of interest to all those involved in the development of railways, including managers, consultants, railway engineers, designers of advanced train control systems and computer specialists.

Application of Smart Grid Technologies Springer Nature

The latest oil and gas well completion technologies and best practices Increase oil and gas production and maximize revenue generation using the start-to-finish completion procedures contained in this hands-on guide. Written by a pair of energy production experts, Modern Completion Technology for Oil and Gas Wells introduces each technique, shows how it works, and teaches how to deploy it effectively. You will get full explanations of the goals of completion along with detailed examples and case studies that clearly demonstrate how to successfully meet those goals. Modern production methods such as hydraulic fracturing, acid simulation, and intelligent well completions are thoroughly covered. Coverage includes: •Functions and goals of oil and gas well completion •Well completion fundamentals •Completion impact in near-wellbore region to inflow performance •Completions for fracturing •Completions for acid stimulation •Intelligent well completion: downhole monitoring and flow control •Completion designs for production and injection optimization

Springer Nature

This proceedings book presents a comprehensive view of “smart” technologies and perspectives of

their application in various areas of economic activity. The authors of the book combined the results of the cutting-edge research on the topic of “smart” technologies in the digital economy and Industry 4.0 and developed a unified scientific concept. The current experience has been considered, and the prospects for the application of “smart” technologies in society to promote social advance have been identified. “Smart” technologies in public administration and law, as well as the experience in development of e-government, have been examined. “Smart” technologies in business activity have been studied, and the transition from digital business to business 4.0 has been justified. The book contains the collection of the best works following the results of the 13th International Research-to-Practice Conference “Smart Technologies” for society, state and economy which was run by the Institute of Scientific Communications (ISC) and was held on July 2-3, 2020. The target audience of this book includes researchers investigating fundamental and applied problems of development of “smart” technologies, as well as concerned parties outside the academic community, in particular, representatives of the digital society, high-tech business entities and officials regulating the digital economy and Industry 4.0.

Modern Completion Technology for Oil and Gas Wells CSIS

This book is a compilation of selected papers from the 4th International Petroleum and Petrochemical Technology Conference (IPPTC 2020). The proceedings focus on Static & Dynamic Reservoir Evaluation and Management; Drilling, Production and Oilfield Chemistry; Storage, Transportation and Flow Assurance; Refinery and Petrochemical Engineering; Machinery, Materials and Corrosion Protection. The conference not only provides a platform to exchanges experience, but also promotes the development of scientific research in oil & gas exploration and production. The main audience for the work includes industry experts, leading engineers, researchers and technical managers as well as university scholars.

Frontiers of Energy and Environmental Engineering Springer

Integrated Operations in the Oil and Gas Industry: Sustainability and Capability

DevelopmentSustainability and Capability DevelopmentIGI Global

The Changing Dynamics of Energy in the Middle East Integrated Operations in the Oil and Gas Industry: Sustainability and Capability DevelopmentSustainability and Capability Development Application of Smart Grid Technologies: Case Studies in Saving Electricity in Different Parts of the World provides a wide international view of smart grid technologies and their implementation in all regions of the globe. A brief overview of smart grid concepts and state-of-the art technologies is followed by sections that highlight smart grid experiences in Asia, Africa, North America, South America, Europe and Australasia. Chapters address select countries or sub-regions, presenting their local technological needs and specificities, status of smart grid implementation, technologies of choice, impacts on their electricity markets, and future trends. Similar chapter makes it easier to compare these experiences. In a time when the smart grid is becoming a worldwide reality, this book is ideal for professionals in power transmission and distribution companies, as well as students and researchers in the same field. It is also useful for those involved in energy management and policymaking. Presents the status and challenges of smart grid technologies and their implementation around the globe Includes global case studies written by local experts and organized for easy comparison Provides a brief overview of smart grid concepts and currently available technologies

Proceedings of the International Petroleum and Petrochemical Technology Conference 2020 IGI Global

Written in clear, concise language and designed for an introductory applied energy course, Applied Energy: An Introduction discusses energy applications in small-medium enterprises, solar energy, hydro and wind energy, nuclear energy, hybrid energy, and energy sustainability issues. Focusing on renewable energy technologies, energy conversion, and conservation and the energy industry, the author lists the key aspects of applied energy and related studies, taking a question-based approach to the material that is useful for both undergraduate students and postgraduates who want a broad overview of energy conversion. The author carefully designed the text to motivate students and give them the foundation they need to place the concepts presented into a real-world context. He begins with an introduction to the basics and the definitions used throughout the book. From there, he covers the energy industry and energy applications; energy sources, supply, and demand; and energy management, policy, plans, and analysis. Building on this, the author elucidates various energy saving technologies and energy storage methods, explores the pros and cons of fossil fuels and alternative energy sources, and examines the various types of applications of alternative energies. The book concludes with chapters on hybrid energy technology, hybrid

energy schemes, other energy conversion methods, and applied energy issues. The book takes advantage of practical and application-based learning, presenting the information in various forms such as essential notes followed by practical projects, assignments, and objective and practical questions. In each chapter, a small section introduces some elements of applied energy design and innovation, linking knowledge with applied energy design and practice. The comprehensive coverage gives students the skills not only to master the concepts in the course, but also apply them to future work in this area.

International Petroleum Encyclopedia CRC Press

Risk Assessment and Security for Pipelines, Tunnels, and Underground Rail and Transit Operations details a quantitative risk assessment methodology for systematically analyzing various alternatives for protecting underground rail, oil and gas pipelines, pipeline freight transportation, and other tunnel systems from terrorism threats and other disasters. It examines the engineering, environmental, and economic impacts and addresses both direct and collateral damage. The book describes how to employ the methodology of quantitative psychology for effectively assessing risk in homeland security, defense actions, and critical infrastructure protection. Using pipelines, tunnels, underground rapid rail, and transit systems as examples, it maintains an emphasis on applying quantitative psychology to risk management in the areas of homeland security and defense. Outlines the background and system operations of pipelines, tunnels, underground rail, and transit systems as well as other super-speed futuristic trains Covers materials used for fabricating weapons of mass destruction and operations for terrorism Deals with the probabilistic

risk estimation process, event tree analysis, and fault tree analysis Discusses the risk and vulnerability assessment tools and methodologies used by experts and governmental agencies Approved for public release by the U.S. Federal Government, this book presents regulations, standard processes, and risk assessment models recommended by the U.S. Department of Homeland Security and other federal and state agencies. Describing how to evaluate terrorism threats and warnings, it details protocols for preventive measures and emergency preparedness plans that are based on economic analysis. With comprehensive coverage that includes risk estimation and risk acceptability analysis, the book provides a foundational understanding of risk and the various defensive systems that can improve safety and security as well as thwart terrorists' efforts to sabotage critical infrastructure.

Smart Technologies for Emergency Response and Disaster Management Springer Nature
Technology advances are making tech more . . . human. This changes everything you thought you knew about innovation and strategy. In their groundbreaking book, *Human + Machine*, Accenture technology leaders Paul R. Daugherty and H. James Wilson showed how leading organizations use the power of human-machine collaboration to transform their processes and their bottom lines. Now, as new AI powered technologies like the metaverse, natural language processing, and digital twins begin to rapidly impact both life and work, those companies and other pioneers across industries are tipping the balance even more strikingly toward the human side with technology-led strategy that is reshaping the very nature of innovation. In *Radically Human*, Daugherty and Wilson

show this profound shift, fast-forwarded by the pandemic, toward more human—and more humane—technology. Artificial intelligence is becoming less artificial and more intelligent. Instead of data-hungry approaches to AI, innovators are pursuing data-efficient approaches that enable machines to learn as humans do. Instead of replacing workers with machines, they're unleashing human expertise to create human-centered AI. In place of lumbering legacy IT systems, they're building cloud-first IT architectures able to continuously adapt to a world of billions of connected devices. And they're pursuing strategies that will take their place alongside classic, winning business formulas like disruptive innovation. These against-the-grain approaches to the basic building blocks of business—Intelligence, Data, Expertise, Architecture, and Strategy (IDEAS)—are transforming competition. Industrial giants and startups alike are drawing on this radically human IDEAS framework to create new business models, optimize post-pandemic approaches to work and talent, rebuild trust with their stakeholders, and show the way toward a sustainable future. With compelling insights and fresh examples from a variety of industries, *Radically Human* will forever change the way you think about, practice, and win with innovation.

Case Studies in Saving Electricity in Different Parts of the World IOS Press

This one-stop reference provides the state-of-the-art theory, key strategies, protocols, deployment aspects, standardization activities and experimental studies of communication and networking technologies for the smart grid. Expert authors provide all the essential information researchers need to progress in the field and to allow power systems engineers to optimize their communication systems.