

Unexploded Ordnance Detection And Mitigation Nato Science For Peace And Security Series B Physics And Biophysics

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Unexploded Ordnance Detection And Mitigation

Environmental considerations and mitigation have become increasingly ... The battlespace is expected to be an engineer challenge due to unexploded ordnance, mines, and damaged road networks.

Fundamentals of Theater-Engineer Operations

Mitigation Approach, and Roadmap 2017 An Assessment of the Challenges Associated with Individual Battlefield Power:: Addressing the Power Budget Burdens of the Warfighter and Squad 2014 ...

Institute for Defense Analyses

At least 52 people were killed when a Philippine Air Force (PAF) C-130H Hercules medium transport ai... The US Army is delaying plans to roll out a Common Modular Open Suite of Standards (CMOSS) ...

Janes - News page

Kylie Bielby has more than 20 years' experience in reporting and editing a wide range of security topics, covering geopolitical and policy analysis to international and country-specific trends and ...

The chapters in this volume were presented at the July–August 2008 NATO Advanced Study Institute on Unexploded Ordnance Detection and Mitigation. The conference was held at the beautiful Il Ciocco resort near Lucca, in the glorious Tuscany region of northern Italy. For the ninth time we gathered at this idyllic spot to explore and extend the reciprocity between mathematics and engineering. The dynamic interaction between world-renowned scientists from the usually disparate communities of pure mathematicians and applied scientists which occurred at our eight previous ASI's continued at this meeting. The detection and neutralization of unexploded ordnance (UXO) has been of major concern for very many decades; at least since the First World war. UXO continues to be the subject of intensive research in many ?elds of science, incl- ing mathematics, signal processing (mainly radar and sonar) and chemistry. While today's headlines emphasize the mayhem resulting from the placement of imp- vised explosive devices (IEDs), humanitarian landmine clearing continues to draw signi?cant global attention as well. In many countries of the world, landmines threaten the population and hinder reconstruction and fast, ef?cient utilization of large areas of the mined land in the aftermath of military con?icts.

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Evaluates the technical soundness of existing methods for assessing the risks posed by unexploded ordance at U.S. military installations.

Provides complete and up-to-date coverage of the foundational principles, enabling technologies, and specific instruments of portable spectrometry Portable Spectroscopy and Spectrometry: Volume One is both a timely overview of the miniature technologies used in spectrometry, and an authoritative guide to the specific instruments employed in a wide range of disciplines. This much-needed resource is the first comprehensive work to describe the enabling technologies of portable spectrometry, explain how various handheld and portable instruments work, discuss their potential limitations, and provide clear guidance on optimizing their utility and accuracy in the field. In-depth chapters—written by a team of international authors from a wide range of disciplinary backgrounds—have been carefully reviewed both by the editors and by third-party experts to ensure their quality and completeness. Volume One begins with general discussion of portable spectrometer engineering before moving through the electromagnetic spectrum to cover x-ray fluorescence (XRF), UV-visible, near-infrared, mid-infrared, and Raman spectroscopies. Subsequent chapters examine microplasmas, laser induced breakdown spectroscopy (LIBS), nuclear magnetic resonance (NMR) spectroscopy, and a variety of portable mass spectrometry instrument types. Featuring detailed chapters on DNA instrumentation and biological analyzers—topics of intense interest in light of the global coronavirus pandemic—this timely volume: Provides comprehensive coverage of the principles and instruments central to portable spectroscopy Includes contributions by experienced professionals working in instrument companies, universities, research institutes, the military, and hazardous material teams Discusses special topics such as smartphone spectroscopy, optical filter technology, stand-off detection, and MEMS/MOEMS technology Covers elemental spectroscopy, optical molecular spectroscopy, mass spectrometry, and molecular and imaging technologies Portable Spectroscopy and Spectrometry: Volume One is an indispensable resource for developers of portable instruments, civilian and government purchasers and operators, and teachers and students of portable spectroscopy. When combined with Volume Two, which focuses on the multitude of applications of portable instrumentation, Portable Spectroscopy and Spectrometry provides the most thorough coverage of the field currently available.

Attacks in London, Madrid, Bali, Oklahoma City and other places indicate that improvised explosive devices (IEDs) are among the weapons of choice of terrorists throughout the world. Scientists and engineers have developed various technologies that have been used to counter individual IED attacks, but events in Iraq and elsewhere indicate that the effectiveness of IEDs as weapons of asymmetric warfare remains. The Office of Naval Research has asked The National Research Council to examine the current state of knowledge and practice in the prevention, detection, and mitigation of the effects of IEDs and make recommendations for avenues of research toward the goal of making these devices an ineffective tool of asymmetric warfare. The book includes recommendations such as identifying the most important and most vulnerable elements in the chain of events leading up to an IED attack, determining how resources can be controlled in order to prevent the construction of IEDs, new analytical methods and data modeling to predict the ever-changing behavior of insurgents/terrorists, a deeper understanding of social divisions in societies, enhanced capabilities for persistent surveillance, and improved IED detection capabilities.

This dictionary contains 739 entries with about 1400 references to the primary literature. Details on the composition, performance, sensitivity and other pertinent properties of Energetic Materials such as High Explosives, Propellants, Pyrotechnics, as well as important ingredients such as Oxidizers, Fuels, Binders, and Modifiers are given and presented partly in over 180 tables with more than 240 structural formulas . In detail the dictionary gives elaborate descriptions of 460 Chemical Substances 170 Pyrotechnic Compositions 360 High Explosive and Propellant Formulations In addition, the basic physical and thermochemical properties of 435 pure substances (elements & compounds) typically occurring as ingredients or reaction products are given too. 150 Figures, schemes and diagrams explain Applications, Test methods, Scientific facilities, and finally Individuals closely tied with the development and investigation of Energetic Materials. The book is intended for readers with a technical or scientific background, active in governmental agencies, research institutes, trade and industry, concerned with the procurement, development, manufacture, investigation and use of Energetic Materials, such as High Explosives, Propellants, Pyrotechnics, Fireworks and Ammunition. The book serves both as a daily reference for the experienced as well as an introduction for the newcomer to the field.

The study of operations research arose during World War II to enhance the effectiveness of weapons and equipment used on the battlefield. Since then, operations research techniques have also been used to solve several sophisticated and complex defense-related problems. Operations Research for Military Organizations is a critical scholarly resource that examines the issues that have an impact on aspects of contemporary quantitative applications of operations research methods in the military. It also addresses innovative applications, techniques, and methodologies to assist in solving defense and military-related problems. Featuring coverage on a broad range of topics such as combat planning, tactical decision aids, and weapon system simulations, this book is geared towards defense contractors, military consultants, military personnel, policy makers, and government departments seeking current research on defense methodologies.

Robots are used in industry, rescue missions, military operations, and subwater missions. Their use in hazardous environments is crucial in terms of occupational safety of workers and the health of rescue and military operations. This book presents several hazardous environment operations and safe operations of robots interacting with people in the context of occupational health and safety.

The collection of chapters in this book present the concept of matched filters: response characteristics “matching” the characteristics of crucially important sensory inputs, which allows detection of vital sensory stimuli while sensory inputs not necessary for the survival of the animal tend to be filtered out, or sacrificed. The individual contributions discuss that the evolution of sensing systems resulted from the necessity to achieve the most efficient sensing of vital information at the lowest possible energetic cost. Matched filters are found in all senses including vision, hearing, olfaction, mechanoreception, electroreception and infrared sensing and different cases will be referred to in detail.

This volume comprises papers dedicated to data science and the extraction of knowledge from many types of data: structural, quantitative, or statistical approaches for the analysis of data; advances in classification, clustering and pattern recognition methods; strategies for modeling complex data and mining large data sets; applications of advanced methods in specific domains of practice. The contributions offer interesting applications to various disciplines such as psychology, biology, medical and health sciences; economics, marketing, banking and finance; engineering; geography and geology; archeology, sociology, educational sciences, linguistics and musicology; library science. The book contains the selected and peer-reviewed papers presented during the European Conference on Data Analysis (ECDA 2013) which was jointly held by the German Classification Society (GfKl) and the French-speaking Classification Society (SFC) in July 2013 at the University of Luxembourg.

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