

Bomb Detection Robotics Using Embedded Controller Synopsis

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Blown to Bits - Harold Abelson 2008

'Blown to Bits' is about how the digital explosion is changing everything. The text explains the technology, why it creates so many surprises and why things often don't work the way we expect them to. It is also about things the information explosion is destroying: old assumptions about who is really in control of our lives.

Intelligent Patient Management - Sally McClean 2009-03-20

Healthcare approaches with origins in Artificial Intelligence and Operational Research can greatly improve the diagnosis, treatment and overall care of patients. This book focuses on the use of such Intelligent Patient Management for healthcare professionals.

Rules of Play Katie Salen Tekinbas 2003-09-25

An impassioned look at games and game design that offers the most ambitious framework for understanding them to date. As pop culture, games are as important as film or television—but game design has yet to develop a theoretical framework or critical vocabulary. In *Rules of Play* Katie Salen and Eric Zimmerman present a much-needed primer for this emerging field. They offer a unified model for looking at all kinds of games, from board games and sports to computer and video games. As active participants in game culture, the authors have written *Rules of Play* as a catalyst for innovation, filled with new concepts, strategies, and methodologies for creating and understanding games. Building an aesthetics of interactive systems, Salen and Zimmerman define core concepts like "play," "design," and "interactivity." They look at games through a series of eighteen "game design schemas," or conceptual frameworks, including games as systems of emergence and information, as contexts for social play, as a storytelling medium, and as sites of cultural resistance. Written for game scholars, game developers, and interactive designers, *Rules of Play* is a textbook, reference book, and theoretical guide. It is the first comprehensive attempt to establish a solid theoretical framework for the emerging discipline of game design.

Robotics and Automation Handbook - Thomas R. Kurfess 2018-10-03

As the capability and utility of robots has increased dramatically with new technology, robotic systems can perform tasks that are physically dangerous for humans, repetitive in nature, or require increased accuracy, precision, and sterile conditions to radically minimize human error. The *Robotics and Automation Handbook* addresses the major aspects of designing, fabricating, and enabling robotic systems and their various applications. It presents kinetic and dynamic methods for analyzing robotic systems, considering factors such as force and torque. From these analyses, the book develops several controls approaches, including servo actuation, hybrid control, and trajectory planning. Design aspects include determining specifications for a robot, determining its configuration, and utilizing sensors and actuators. The featured applications focus on how the specific difficulties are overcome in the development of the robotic system. With the ability to increase human safety and precision in applications ranging from handling hazardous materials and exploring extreme environments to manufacturing and medicine, the uses for robots are growing steadily. The *Robotics and Automation Handbook* provides a solid foundation for engineers and scientists interested in designing, fabricating, or utilizing robotic systems.

Anti-Terrorism Law and Foreign Terrorist Fighters - Jessie

Blackbourn 2018-01-19

Jessie Blackbourn is a research fellow at the Centre for Socio-Legal Studies at the University of Oxford, UK. Deniz Kayis is currently the Associate for Chief Justice Allsop AO of the Federal Court of Australia. Nicola McGarrity is a senior lecturer and the Director of the Terrorism Law Reform Project at the University of New South Wales, Australia.

Military Applications of Artificial Intelligence: Ethical Concerns in an Uncertain World - Forrest E. Morgan 2020-06-30

The authors of this report examine military applications of artificial intelligence (AI); compare development efforts in the United States, China, and Russia; and consider the ethical implications of employing military AI in war and peace.

Bioinspired Smell and Taste Sensors - Ping Wang 2015-10-03

This book discusses the field of bioinspired smell and taste sensors which includes many new areas: sensitive materials, physiological modelling and simulation, and more. Similar to biological chemical sensing systems, bioinspired smell and taste sensors are characterized with fast responsive, high specificity and sensitivity. One of the most important parts of the field is that of sensitive elements originated from biological components, which enable the detection of chemical signals by mimicking the biological mechanisms. This book detailed describes processing, devices, recognition principles of sensitive materials, and concrete realizations. It is written for researchers, engineers and biologists who engages in interdisciplinary research and applications. Dr. Ping Wang is a professor at Zhejiang University, Hangzhou, China. Dr. Qingjun Liu is a professor at Zhejiang University, Hangzhou, China. Dr. Chunsheng Wu is an associated professor at Zhejiang University, Hangzhou, China. Dr. K. Jimmy Hsia is a professor at University of Illinois at Urbana-Champaign, Urbana, USA.

Robots Operating in Hazardous Environments - Hüseyin Canbolat 2017

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.

Autonomous Horizons - Greg Zacharias 2019-04-05

Dr. Greg Zacharias, former Chief Scientist of the United States Air Force (2015-18), explores next steps in autonomous systems (AS) development, fielding, and training. Rapid advances in AS development and artificial intelligence (AI) research will change how we think about machines, whether they are individual vehicle platforms or networked enterprises. The payoff will be considerable, affording the US military significant protection for aviators, greater effectiveness in employment, and unlimited opportunities for novel and disruptive concepts of operations. *Autonomous Horizons: The Way Forward* identifies issues and makes recommendations for the Air Force to take full advantage of this transformational technology.

Bioelectronic Nose - Tai Hyun Park 2014-04-25

The "bioelectronic nose", the device which has a similar function to the human smell sensing system, can be realized by combining the olfactory cells or receptors with nanotechnology. In the last two decades, much has been learned about the smell sensing mechanism in biological systems. With knowledge about the biological olfactory system and the techniques for the expression of biological receptor proteins, we are able to utilize biological materials and systems to mimic the biological olfactory system. In addition to the advances in biological and biotechnological area, nanotechnology has progressed to a great degree. The bioelectronic nose is a good example of the integration of biotechnology and nanotechnology. This book describes basic biological sciences of the olfactory system, biotechnology for the production of olfactory biological elements, and nanotechnology for the development of various sensing devices. The purpose of this book is to provide the reader with a concept, basic sciences, fundamental technologies, applications, and perspectives of the bioelectronic nose.

Trust in Human-Robot Interaction - Chang S. Nam 2020-11-17

Trust in Human-Robot Interaction addresses the gamut of factors that influence trust of robotic systems. The book presents the theory, fundamentals, techniques and diverse applications of the behavioral,

cognitive and neural mechanisms of trust in human-robot interaction, covering topics like individual differences, transparency, communication, physical design, privacy and ethics. Presents a repository of the open questions and challenges in trust in HRI Includes contributions from many disciplines participating in HRI research, including psychology, neuroscience, sociology, engineering and computer science Examines human information processing as a foundation for understanding HRI Details the methods and techniques used to test and quantify trust in HRI

Virtual Reality - National Research Council 1995-01-13

Despite widespread interest in virtual reality, research and development efforts in synthetic environments (SE)â€"the field encompassing virtual environments, teleoperation, and hybridsâ€"have remained fragmented. Virtual Reality is the first integrated treatment of the topic, presenting current knowledge along with thought-provoking vignettes about a future where SE is commonplace. This volume discusses all aspects of creating a system that will allow human operators to see, hear, smell, taste, move about, give commands, respond to conditions, and manipulate objects effectively in a real or virtual environment. The committee of computer scientists, engineers, and psychologists on the leading edge of SE development explores the potential applications of SE in the areas of manufacturing, medicine, education, training, scientific visualization, and teleoperation in hazardous environments. The committee also offers recommendations for development of improved SE technology, needed studies of human behavior and evaluation of SE systems, and government policy and infrastructure.

Robotics in Extreme Environment Shie Takahashi 2021-11-01

Topic editor Rustam Stolkin is director of A.R.M Robotics Ltd. All other topic editors declare no competing interests with regards to the Research Topic subject.

Government reports annual index 199?

Unmanned Aircraft Systems (Uas) in the Cyber Domain: Protecting Advanced Air Assets Julie J. C. H. Ryan 2018-09-14

Unmanned Aircraft Systems (UAS) are an integral part of the US national critical infrastructure. They must be protected from hostile intent or use to the same level as any other military or commercial asset involved in US national security. However, from the Spratly Islands to Djibouti to heartland America, the expanding Chinese Unmanned Aircraft Systems (UAS / Drone) industry has outpaced the US technologically and numerically on all fronts: military, commercial, and recreational. Both countries found that there were large information security gaps in unmanned systems that could be exploited on the international cyber-security stage. Many of those gaps remain today and are direct threats to US advanced Air Assets if not mitigated upfront by UAS designers and manufacturers. The authors contend that US military / commercial developers of UAS hardware and software must perform cyber risk assessments and mitigations prior to delivery of UAS systems to stay internationally competitive and secure. The authors have endeavored to bring a breadth and quality of information to the reader that is unparalleled in the unclassified sphere. This book will fully immerse and engage the reader in the cyber-security considerations of this rapidly emerging technology that we know as unmanned aircraft systems (UAS). Topics covered include National Airspace (NAS) policy issues, information security, UAS vulnerabilities in key systems (Sense and Avoid / SCADA), collision avoidance systems, stealth design, intelligence, surveillance and reconnaissance (ISR) platforms; weapons systems security; electronic warfare considerations; data-links, jamming operational vulnerabilities and still-emerging political scenarios that affect US military / commercial decisions.

Artificial Intelligence and Soft Computing Konar 2018-10-08

With all the material available in the field of artificial intelligence (AI) and soft computing-texts, monographs, and journal articles-there remains a serious gap in the literature. Until now, there has been no comprehensive resource accessible to a broad audience yet containing a depth and breadth of information that enables the reader to fully understand and readily apply AI and soft computing concepts. Artificial Intelligence and Soft Computing fills this gap. It presents both the traditional and the modern aspects of AI and soft computing in a clear, insightful, and highly comprehensive style. It provides an in-depth analysis of mathematical models and algorithms and demonstrates their applications in real world problems. Beginning with the behavioral perspective of "human cognition," the text covers the tools and techniques required for its intelligent realization on machines. The author addresses the classical aspects-search, symbolic logic, planning,

and machine learning-in detail and includes the latest research in these areas. He introduces the modern aspects of soft computing from first principles and discusses them in a manner that enables a beginner to grasp the subject. He also covers a number of other leading aspects of AI research, including nonmonotonic and spatio-temporal reasoning, knowledge acquisition, and much more. Artificial Intelligence and Soft Computing: Behavioral and Cognitive Modeling of the Human Brain is unique for its diverse content, clear presentation, and overall completeness. It provides a practical, detailed introduction that will prove valuable to computer science practitioners and students as well as to researchers migrating to the subject from other disciplines.

Wireless Sensors in Heterogeneous Networked Systems - José Cecílio 2014-08-20

This book presents an examination of the middleware that can be used to configure and operate heterogeneous node platforms and sensor networks. The middleware requirements for a range of application scenarios are compared and analysed. The text then defines middleware architecture that has been integrated in an approach demonstrated live in a refinery. Features: presents a thorough introduction to the major concepts behind wireless sensor networks (WSNs); reviews the various application scenarios and existing middleware solutions for WSNs; discusses the middleware mechanisms necessary for heterogeneous WSNs; provides a detailed examination of platform-agnostic middleware architecture, including important implementation details; investigates the programming paradigms for WSNs, and for heterogeneous sensor networks in general; describes the results of extensive experimentation and testing, demonstrating that the generic architecture is viable for implementation on multiple platforms.

Robotics and Military Operations William G. Braun III 2019-01-16

In the wake of two extended wars, Western militaries find themselves looking to the future while confronting amorphous nonstate threats and shrinking defense budgets. The 2015 Kingston Conference on International Security (KCIS) examined how robotics and autonomous systems that enhance soldier effectiveness may offer attractive investment opportunities for developing a more efficient force capable of operating effectively in the future environment. This monograph offers 3 chapters derived from the KCIS and explores the drivers influencing strategic choices associated with these technologies and offers preliminary policy recommendations geared to advance a comprehensive technology investment strategy. In addition, the publication offers insight into the ethical challenges and potential positive moral implications of using robots on the modern battlefield.

Engineering a Safer World Nancy G. Leveson 2012-01-13

A new approach to safety, based on systems thinking, that is more effective, less costly, and easier to use than current techniques. Engineering has experienced a technological revolution, but the basic engineering techniques applied in safety and reliability engineering, created in a simpler, analog world, have changed very little over the years. In this groundbreaking book, Nancy Leveson proposes a new approach to safety—more suited to today's complex, sociotechnical, software-intensive world—based on modern systems thinking and systems theory. Revisiting and updating ideas pioneered by 1950s aerospace engineers in their System Safety concept, and testing her new model extensively on real-world examples, Leveson has created a new approach to safety that is more effective, less expensive, and easier to use than current techniques. Arguing that traditional models of causality are inadequate, Leveson presents a new, extended model of causation (Systems-Theoretic Accident Model and Processes, or STAMP), then shows how the new model can be used to create techniques for system safety engineering, including accident analysis, hazard analysis, system design, safety in operations, and management of safety-critical systems. She applies the new techniques to real-world events including the friendly-fire loss of a U.S. Blackhawk helicopter in the first Gulf War; the Vioxx recall; the U.S. Navy SUBSAFE program; and the bacterial contamination of a public water supply in a Canadian town. Leveson's approach is relevant even beyond safety engineering, offering techniques for "reengineering" any large sociotechnical system to improve safety and manage risk.

Architects of Intelligence - Martin Ford 2018-11-23

Financial Times Best Books of the Year 2018 TechRepublic Top Books Every Techie Should Read Book Description How will AI evolve and what major innovations are on the horizon? What will its impact be on the job market, economy, and society? What is the path toward human-level machine intelligence? What should we be concerned about as artificial intelligence advances? Architects of Intelligence contains a series of in-

depth, one-to-one interviews where New York Times bestselling author, Martin Ford, uncovers the truth behind these questions from some of the brightest minds in the Artificial Intelligence community. Martin has wide-ranging conversations with twenty-three of the world's foremost researchers and entrepreneurs working in AI and robotics: Demis Hassabis (DeepMind), Ray Kurzweil (Google), Geoffrey Hinton (Univ. of Toronto and Google), Rodney Brooks (Rethink Robotics), Yann LeCun (Facebook), Fei-Fei Li (Stanford and Google), Yoshua Bengio (Univ. of Montreal), Andrew Ng (AI Fund), Daphne Koller (Stanford), Stuart Russell (UC Berkeley), Nick Bostrom (Univ. of Oxford), Barbara Grosz (Harvard), David Ferrucci (Elemental Cognition), James Manyika (McKinsey), Judea Pearl (UCLA), Josh Tenenbaum (MIT), Rana el Kaliouby (Affectiva), Daniela Rus (MIT), Jeff Dean (Google), Cynthia Breazeal (MIT), Oren Etzioni (Allen Institute for AI), Gary Marcus (NYU), and Bryan Johnson (Kernel). Martin Ford is a prominent futurist, and author of Financial Times Business Book of the Year, *Rise of the Robots*. He speaks at conferences and companies around the world on what AI and automation might mean for the future. Meet the minds behind the AI superpowers as they discuss the science, business and ethics of modern artificial intelligence. Read James Manyika's thoughts on AI analytics, Geoffrey Hinton's breakthroughs in AI programming and development, and Rana el Kaliouby's insights into AI marketing. This AI book collects the opinions of the luminaries of the AI business, such as Stuart Russell (coauthor of the leading AI textbook), Rodney Brooks (a leader in AI robotics), Demis Hassabis (chess prodigy and mind behind AlphaGo), and Yoshua Bengio (leader in deep learning) to complete your AI education and give you an AI advantage in 2019 and the future.

Foundational Issues in Artificial Intelligence and Cognitive Science - M.H. Bickhard 1996-10-15

The book focuses on a conceptual flaw in contemporary artificial intelligence and cognitive science. Many people have discovered diverse manifestations and facets of this flaw, but the central conceptual impasse is at best only partially perceived. Its consequences, nevertheless, visit themselves as distortions and failures of multiple research projects - and make impossible the ultimate aspirations of the fields. The impasse concerns a presupposition concerning the nature of representation - that all representation has the nature of encodings: encodingism. Encodings certainly exist, but encodingism is at root logically incoherent; any programmatic research predicted on it is doomed to distortion and ultimate failure. The impasse and its consequences - and steps away from that impasse - are explored in a large number of projects and approaches. These include SOAR, CYC, PDP, situated cognition, subsumption architecture robotics, and the frame problems - a general survey of the current research in AI and Cognitive Science emerges. Interactivism, an alternative model of representation, is proposed and examined.

Principles of Robot Motion - Howie Choset 2005-05-20

A text that makes the mathematical underpinnings of robot motion accessible and relates low-level details of implementation to high-level algorithmic concepts. Robot motion planning has become a major focus of robotics. Research findings can be applied not only to robotics but to planning routes on circuit boards, directing digital actors in computer graphics, robot-assisted surgery and medicine, and in novel areas such as drug design and protein folding. This text reflects the great advances that have taken place in the last ten years, including sensor-based planning, probabilistic planning, localization and mapping, and motion planning for dynamic and nonholonomic systems. Its presentation makes the mathematical underpinnings of robot motion accessible to students of computer science and engineering, relating low-level implementation details to high-level algorithmic concepts.

Disaster Robotics Satoshi Tadokoro 2019-01-20

This book introduces readers to the latest findings on disaster robotics. It is based on the ImPACT Tough Robotics Challenge, a national project spearheaded by the Japan Cabinet Office that focuses on developing robotics technologies to aid in disaster response, recovery and preparedness. It presents six subprojects that involve robot platforms and several component technologies used in conjunction with robots: cyber rescue canines, which are digitally empowered rescue dogs; serpent-like robots for searching debris; serpent-like robots for plant/infrastructure inspection; UAVs for gathering information on large areas struck by disaster; legged robots for plant/infrastructure inspection in risky places; and construction robots for recovery tasks that require both power and precision. The book offers a valuable source of information for researchers, engineers and practitioners in safety, security and rescue robotics, disaster robotics, and plant and

infrastructure maintenance. It will also appeal to a wider demographic, including students and academics, as it highlights application scenarios and the total concept for each robot in various scientific and technical contexts. In addition to a wealth of figures and photos that explain these robots and systems, as well as experimental data, the book includes a comprehensive list of published papers from this project for readers to refer to. Lastly, an external website offers video footage and updated information from the International Rescue System Institute.

Just Ordinary Robots - Lamber Royakkers 2015-08-28

A social robot is a robot that interacts and communicates with humans or other autonomous physical agents by following social behaviors and rules attached to its role. We seem to accept the use of robots that perform dull, dirty, and dangerous jobs. But how far do we want to go with the automation of care for children and the elderly, or the killing

Embedded Vision - S. R. Vijayalakshmi 2019-10-12

Embedded vision is the integration of "computer vision" into machines that use algorithms to decode meaning from observed images or video. It has a wide range of applications to machine learning, artificial intelligence, industrial, medical, driverless cars, drones, smart phones, aerospace, defense, agriculture, consumer, surveillance, robotics and security. This book is an introductory guide for anyone who is interested in designing machines that have vision-enabled, embedded products. It covers a large number of topics encountered in hardware architecture, software algorithms, applications, advancements in camera, processors, and sensors in the field of embedded vision. Features: Includes a wide range of applications to artificial intelligence, machine learning, industry, science, medicine, transportation, civil infrastructure, and security. Covers a large number of topics encountered in hardware architecture, software algorithms, applications, advancements in processors and sensors.

Landmines Detection by Using Mobile Robots Ahmed Ismail 2017-10-06

Master's Thesis from the year 2016 in the subject Engineering - Robotics, Mansoura University, language: English, abstract: This thesis studies strategies for humanitarian demining using robotic units. The author presents a low-cost system for landmines detection. The proposed system uses fusion of low cost multi sensors instead of using very expensive one. The proposed robot used sensor fusion technique to increase the probability of mine detection. The author has developed decision level fusion to decrease false alarm of mines detection. He used complete coverage path planning to find all possible mines in the environment. The author proposed using multiple robots with the same structure to use complete coverage path in parallel way to save the time. He proposed effective obstacle avoidance algorithm to help the robot moves in autonomous motion. The proposed robot is light in order not to trigger mines and be destroyed. He proposed effective method to destroy mines where they are using arm on the robot to help defusing method. The purpose of the thesis is to give an efficient solution for the landmines problem. By using robots that are capable of exploring and destroying buried landmines. The author also aimed to make the proposed robot with simple components to provide the soldiers and local landmines environments citizens with effective solution that they can use to save their lives.

Artificial Intelligence Abstracts - 1990

Network Intrusion Detection - Stephen Northcutt 2002

This book is a training aid and reference for intrusion detection analysts. While the authors refer to research and theory, they focus their attention on providing practical information. New to this edition is coverage of packet dissection, IP datagram fields, forensics, and snort filters.

Designing Mobile Autonomous Robots - John M. Holland 2004

Using Robots in Hazardous Environments - Y Baudoin 2010-12-20

There have been major recent advances in robotic systems that can replace humans in undertaking hazardous activities in demanding or dangerous environments. Published in association with the CLAWAR (Climbing and Walking Robots and Associated Technologies Association) (www.clawar.org), this important book reviews the development of robotic systems for de-mining and other risky activities such as fire-fighting. Part one provides an overview of the use of robots for humanitarian de-mining work. Part two discusses the development of sensors for mine detection whilst Part three reviews developments in both teleoperated and autonomous robots. Building on the latter, Part four concentrates on robot autonomous navigation. The final part of the book reviews research on multi-agent-systems (MAS) and the multi-robotics-systems (MRS), promising tools that take into account modular design of

mobile robots and the use of several robots in multi-task missions. With its distinguished editors and international team of contributors, *Using robots in hazardous environments: landmine detection, de-mining and other applications* is a standard reference for all those researching the use of robots in hazardous environments as well as government and other agencies wishing to use robots for dangerous tasks such as landmine detection and disposal. Reviews the development of robotic systems for de-mining and other risky activities. Discusses the development and applications of sensors for mine detection using different robotic systems. Examines research on multi-agent-systems and multi-robotics systems.

Government Reports Announcements & Index - 1992-10

Scientific and Technical Aerospace Reports - 1987

An Introduction to Ethics in Robotics - Christoph Bartneck 2020
This open access book introduces the reader to the foundations of AI and ethics. It discusses issues of trust, responsibility, liability, privacy and risk. It focuses on the interaction between people and the AI systems and Robotics they use. Designed to be accessible for a broad audience, reading this book does not require prerequisite technical, legal or philosophical expertise. Throughout, the authors use examples to illustrate the issues at hand and conclude the book with a discussion on the application areas of AI and Robotics, in particular autonomous vehicles, automatic weapon systems and biased algorithms. A list of questions and further readings is also included for students willing to explore the topic further.

War in the Age of Intelligent Machines - Manuel De Landa 1991
The author aims to show how the emergence of intelligent and autonomous bombs and missiles equipped with artificial perception and decision-making capabilities represents a profound historical shift in the relation of human beings both to machines and to information.

Century Rain - Alastair Reynolds 2020-04-21
Part science fiction thriller, part interstellar adventure, and part noir crime, *Century Rain* is an astonishing international bestseller of "blistering powers and style" (SF Revu). Three hundred years from now, Earth has been rendered uninhabitable due to the technological catastrophe known as the Nanocaust. Archaeologist Verity Auger specializes in the exploration of its surviving landscape. Now, her expertise is required for a far greater purpose. Something astonishing has been discovered at the far end of a wormhole: a mid-20th-century version of Earth, preserved like a fly in amber. Somewhere on this alternate planet is a device capable of destroying both worlds at either end of the wormhole. And Verity must find the device, and the man who plans to activate it, before it's too late -- for the past and the future of two worlds. *Century Rain* is a jaw-droppingly good SF thriller, packed with pace, adventure, brilliant storytelling and with twists that will keep you guessing to the end.

Introduction to AI Robotics, second edition - Robin R. Murphy 2019-10-01

A comprehensive survey of artificial intelligence algorithms and programming organization for robot systems, combining theoretical rigor and practical applications. This textbook offers a comprehensive survey of artificial intelligence (AI) algorithms and programming organization for robot systems. Readers who master the topics covered will be able to design and evaluate an artificially intelligent robot for applications involving sensing, acting, planning, and learning. A background in AI is not required; the book introduces key AI topics from all AI subdisciplines throughout the book and explains how they contribute to autonomous capabilities. This second edition is a major expansion and reorganization of the first edition, reflecting the dramatic advances made in AI over the past fifteen years. An introductory overview provides a framework for thinking about AI for robotics, distinguishing between the fundamentally different design paradigms of automation and autonomy. The book then discusses the reactive functionality of sensing and acting in AI robotics; introduces the deliberative functions most often associated with intelligence and the capability of autonomous initiative; surveys multi-robot systems and (in a new chapter) human-robot interaction; and offers a "metaview" of how to design and evaluate autonomous systems and the ethical considerations in doing so. New material covers locomotion,

simultaneous localization and mapping, human-robot interaction, machine learning, and ethics. Each chapter includes exercises, and many chapters provide case studies. Endnotes point to additional reading, highlight advanced topics, and offer robot trivia.

Robot Builder's Sourcebook - Gordon McComb 2003

* A much-needed clearinghouse for information on amateur and educational robotics, containing over 2,500 listings of robot suppliers, including mail order and local area businesses * Contains resources for both common and hard-to-find parts and supplies * Features dozens of "sidebars" to clarify essential robotics technologies * Provides original articles on various robot-building topics

Springer Handbook of Robotics - Bruno Siciliano 2016-07-27

The second edition of this handbook provides a state-of-the-art overview on the various aspects in the rapidly developing field of robotics. Reaching for the human frontier, robotics is vigorously engaged in the growing challenges of new emerging domains. Interacting, exploring, and working with humans, the new generation of robots will increasingly touch people and their lives. The credible prospect of practical robots among humans is the result of the scientific endeavour of a half a century of robotic developments that established robotics as a modern scientific discipline. The ongoing vibrant expansion and strong growth of the field during the last decade has fueled this second edition of the *Springer Handbook of Robotics*. The first edition of the handbook soon became a landmark in robotics publishing and won the American Association of Publishers PROSE Award for Excellence in Physical Sciences & Mathematics as well as the organization's Award for Engineering & Technology. The second edition of the handbook, edited by two internationally renowned scientists with the support of an outstanding team of seven part editors and more than 200 authors, continues to be an authoritative reference for robotics researchers, newcomers to the field, and scholars from related disciplines. The contents have been restructured to achieve four main objectives: the enlargement of foundational topics for robotics, the enlightenment of design of various types of robotic systems, the extension of the treatment on robots moving in the environment, and the enrichment of advanced robotics applications. Further to an extensive update, fifteen new chapters have been introduced on emerging topics, and a new generation of authors have joined the handbook's team. A novel addition to the second edition is a comprehensive collection of multimedia references to more than 700 videos, which bring valuable insight into the contents. The videos can be viewed directly augmented into the text with a smartphone or tablet using a unique and specially designed app. *Springer Handbook of Robotics Multimedia Extension Portal*: <http://handbookofrobotics.org/Pre-Incident Indicators of Terrorist Incidents> - Brent L. Smith 2011-01

This is a print on demand edition of a hard to find publication. Explores whether sufficient data exists to examine the temporal and spatial relationships that existed in terrorist group planning, and if so, could patterns of preparatory conduct be identified? About one-half of the terrorists resided, planned, and prepared for terrorism relatively close to their eventual target. The terrorist groups existed for 1,205 days from the first planning meeting to the date of the actual/planned terrorist incident. The planning process for specific acts began 2-3 months prior to the terrorist incident. This study examined selected terrorist groups/incidents in the U.S. from 1980-2002. It provides for the potential to identify patterns of conduct that might lead to intervention prior to the commission of the actual terrorist incidents. Illustrations.

Foundations of Trusted Autonomy - Hussein A. Abbass 2018-01-15

This book establishes the foundations needed to realize the ultimate goals for artificial intelligence, such as autonomy and trustworthiness. Aimed at scientists, researchers, technologists, practitioners, and students, it brings together contributions offering the basics, the challenges and the state-of-the-art on trusted autonomous systems in a single volume. The book is structured in three parts, with chapters written by eminent researchers and outstanding practitioners and users in the field. The first part covers foundational artificial intelligence technologies, while the second part covers philosophical, practical and technological perspectives on trust. Lastly, the third part presents advanced topics necessary to create future trusted autonomous systems. The book augments theory with real-world applications including cyber security, defence and space.