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The fast and easy way to pick out, set up, and learn to fly your drone Ready to soar into the world of unmanned aircraft? Drones For Dummies introduces you to the fascinating world of UAVs. Written in plain English and brimming with friendly instruction, Drones For Dummies provides you with the information you need to find and purchase the right drone for your needs, examples of ways to use a drone, and even drone etiquette and the laws and regulations governing consumer drone usage. Plus, you'll discover the basics of flight, including how to use a drone to capture photos and video. Originally designed to assist in military and special operations applications, the use of drones has expanded into the public service sector and the consumer market for people looking to have a good time flying an aircraft remotely. Drones For Dummies covers everything you need to know to have fun with your UAV, and is packed with cool ways to expand your drone's use beyond simply flying. Pick the perfect drone to suit your needs Properly set up and fly a drone Use a drone to capture images and footage with a camera Tips for maintaining your drone If you're interested in the exciting new technology of unmanned aircraft vehicles, Drones For Dummies helps you take flight.

This open access, interdisciplinary book presents innovative strategies in the use of civil drones in the cultural and creative industry. Specially aimed at small and medium-sized enterprises (SMEs), the book offers valuable insights from the fields of marketing, engineering, arts and management. With contributions from experts representing varied interests throughout the creative industry, including academic researchers, software developers and engineers, it analyzes the needs of the creative industry when using civil drones both outdoors and indoors. The book also provides timely recommendations to the industry, as well as guidance for academics and policymakers.

Titanium for Consumer Applications: Review of the use of Titanium within the Consumer Industry is the first book to tie together the metallurgical advantages of titanium in consumer applications. The book begins with a discussion of the metallurgy and properties of titanium that is followed by six distinct sections that look at the use of titanium in consumer products, the auto industry, buildings and architecture, marine, chemical processing facilities and the energy field. This book is useful for individuals involved in the manufacturing of titanium components, as well as those looking to define new applications for this versatile metal. Presents an understanding of the applications of titanium in commercial industries Discusses the properties of titanium and their unique benefits in commercial applications Reviews potential further applications of titanium within the consumer industry

This book is an everything-included approach to understanding drones, creating an organization around using unmanned aircraft, and outlining the process of safety to protect that program. It is the first-of-a-kind safety-focused text book for unmanned aircraft operations, providing the reader with a required understanding of hazard identification, risk analysis, mitigation, and promotion. It enables the reader to speak the same language as any civil aviation authority, and gives them the toolset to create a safety risk management program for unmanned aircraft. The main items in this book break down into three categories. The first approach is understanding how the drone landscape has evolved over the last 40 years. From understanding the military components of UAS to the standards and regulations evolution, the reader garners a keen understanding of where we came from and why it matters for moving forward. The second approach is in understanding how safety risk management in aviation can be applied to drones, and how that fits into the regulatory and legislative environment internationally. Lastly, a brief synopsis of the community landscape for unmanned aircraft is outlined with interviews from important leaders and stakeholders in the marketplace. Drones fills a gap in resources within the unmanned aircraft world. It provides a robust understanding of drones, while giving the tools necessary to apply for a certificate of authorization, enabling more advanced flight operations for any company, and developing safety risk management tools for students and career professionals. It will be a mainstay in all safety program courses and will be a required tool for any and all individuals looking to operate safely and successfully in the United States.

An unmanned aircraft system (UAS), sometimes called a drone, is an aircraft without a human pilot onboard - instead, the UAS is controlled from an operator on the ground. This hearing will examine the successes and the challenges we face with respect to the continued integration of UAS into the national airspace system. This technology has the capability to change, and in some cases has already changed, the way many companies do business. Obtaining an easily accessible aerial view via an off-the-shelf drone for realtors or photographers, and collecting even more advanced data for farmers, energy companies, or first responders are just a few examples of how UAS can increase safety, expand opportunities, and create significant efficiencies. Innovators across the industry are continuing to find new ways to market services, solve technical problems, mitigate safety risks, and remain on the cutting edge of the future of this technology. In addition to commercial activities, hundreds of thousands of drones have been sold and registered to hobbyists and recreational users around the country. Some of these users are long-time aviation enthusiasts while many others have been engaged by this new technology and are excited to take flight for the first time. Drones have proven to be so popular, in fact, that the online registration system for small UAS, which went live in 2015, already has 750,000 unmanned registrations, compared to the roughly 315,000 registrations for manned aircraft. While unmanned aircraft systems have been employed by the military for decades, integration of both commercial and recreational drones into the national airspace was first addressed in law by the FAA Modernization and Reform Act of 2012. Since that time, we have come a long way in terms of adoption, research, technology, and public policy.

Introduction to Unmanned Aircraft Systems is the editors' response to their unsuccessful search for suitable university-level textbooks on this subject. A collection of contributions from top experts, this book applies the depth of their expertise to identify and survey the fundamentals of unmanned aircraft system (UAS) operations. Written from a nonengineering civilian operational perspective, the book starts by detailing the history of UASs and

then explores current technology and what is expected for the future. Covering all facets of UAS elements and operation—including an examination of safety procedures and human factors—this material gives readers a truly complete and practical understanding of what it takes to safely operate UASs for a variety of missions in the National Airspace System. Topics covered include: The U.S. aviation regulatory system Certificate of authorization process UAS for geospatial data Automation and autonomy in UAS Sensors and payloads With helpful end-of-chapter discussion questions, this resource is designed to give beginning university students and other new entrants to the field a comprehensive, easy-to-understand first overview of the field. The book's broad scope also makes it useful as a foundation for professionals embarking on further study.

In recent years, drones have been integrated with the Internet of Things to offer a variety of exciting new applications. Here is a detailed exploration of adapting and implementing Internet of Drones technologies in real-world applications, emphasizing solutions to architectural challenges and providing a clear overview of standardization and regulation, implementation plans, and privacy concerns. The book discusses the architectures and protocols for drone communications, implementing and deploying of 5G-drone setups, security issues, deep learning techniques applied on real-time footage, and more. It also explores some of the varied applications, such as for monitoring and analysis of troposphere pollutants, providing services and communications in smart cities (such as for weather forecasting, communications, transport, safety and protection), for disaster relief management, for agricultural crop monitoring, and more.

Multi-rotor Platform Based UAV Systems provides an excellent opportunity for experiential learning, capability augmentation and confidence-building for senior level undergraduates, entry-level graduates, engineers working in government agencies, and industry involved in UAV R&D. Topics in this book include an introduction to VTOL multi-copter UAV platforms, UAV system architecture, integration in the national airspace, including UAV classification and associated missions, regulation and safety, certification and air traffic management, integrated mission planning, including autonomous fault tolerant path planning and vision based auto landing systems, flight mechanics and stability, dynamic modeling and flight controller development. Other topics covered include sense, detect and avoid systems, flight testing, including safety assessment instrumentation and data acquisition telemetry, synchronization data fusion, the geo-location of identified targets, and much more. Provides an excellent opportunity for experiential learning, capability augmentation and confidence building for senior level undergraduates, entry-level graduates and engineers working in government, and industry involved in UAV R&D Includes MATLAB/SIMULINK computational tools and off-the-shelf hardware implementation tutorials Offers a student centered approach Provides a quick and efficient means to conceptualize, design, synthesize and analyze using modeling and simulations Offers international perspective and appeal for engineering students and professionals

UNMANNED AIRCRAFT SYSTEMS UNMANNED AIRCRAFT SYSTEMS An unmanned aircraft system (UAS), sometimes called a drone, is an aircraft without a human pilot on board ??? instead, the UAS can be controlled by an operator station on the ground or may be autonomous in operation. UAS are capable of addressing a broad range of applications in diverse, complex environments. Traditionally employed in mainly military applications, recent regulatory changes around the world are leading to an explosion of interest and wide-ranging new applications for UAS in civil airspace. Covering the design, development, operation, and mission profiles of unmanned aircraft systems, this single, comprehensive volume forms a complete, stand-alone reference on the topic. The volume integrates with the online Wiley Encyclopedia of Aerospace Engineering, providing many new and updated articles for existing subscribers to that work. The chapters cover the following items: Airframe configurations and design (launch systems, power generation, propulsion) Operations (missions, integration issues, and airspace access) Coordination (multivehicle cooperation and human oversight) With contributions from leading experts, this volume is intended to be a valuable addition, and a useful resource, for aerospace manufacturers and suppliers, governmental and industrial aerospace research establishments, airline and aviation industries, university engineering and science departments, and industry analysts, consultants, and researchers.

This open access book disseminates some of the results of the European H2020 AiRT Project (Technology transfer of RPAs for the creative industry). In particular, it presents findings related to mitigating safety and security concerns when civil drones are piloted by the service sector (mainly, the creative industry). European policies regarding drones generally focus on outdoor drones, but they are also used indoors. Moreover, a number of European countries have fragmented regulations on drone use, and as a result, European institutions are attempting address these issues. This work is based on a detailed study of the European policies, a comparative analysis of the regulation in various European countries, an analysis of the drone sector in Europe, and primary data from members of the creative industry. The authors created focus groups in Spain, the UK and Belgium in order to discuss with the creative industry the concerns on safety and security when using civil drones for their work. Based on these results, the book offers advice to the European industry, as well as new insights for academics and policymakers.

This comprehensive resource explains the development of UAVs, drone threats, counter-UAV systems, and strategies to handle UAVs, focusing on the practical aspects of counter-unmanned aerial vehicle (UAV) systems and technologies. Theory, technical and operational practice with insights from industry and policing are covered, and the full rogue drone threat landscape and counter-drone technologies and systems is explored. The book provides insight into counter-drone strategy, developing effective counter-drone strategies and measures, as well as counter-drone programs and the regulatory frameworks governing the use of drones. It includes analysis of future drone and counter-drone challenges and highlights ongoing research and innovation activities and an examination of future drone technologies. Written by authors who have extensive academic, research, innovation, technical, industry and police operational investigative expertise at international level, this book is useful for the aviation sector, law enforcement and

academia.

First used in military applications, unmanned aerial vehicles are becoming an integral aspect of modern society and are expanding into the commercial, scientific, recreational, agricultural, and surveillance sectors. With the increasing use of these drones by government officials, business professionals, and civilians, more research is needed to understand their complexity both in design and function. *Unmanned Aerial Vehicles: Breakthroughs in Research and Practice* is a critical source of academic knowledge on the design, construction, and maintenance of drones, as well as their applications across all aspects of society. Highlighting a range of pertinent topics such as intelligent systems, artificial intelligence, and situation awareness, this publication is an ideal reference source for military consultants, military personnel, business professionals, operation managers, surveillance companies, agriculturalists, policymakers, government officials, law enforcement, IT professionals, academicians, researchers, and graduate-level students.

This book provides a clear insight about IoD and its requirements, protocols, performance improvement, evaluation methods and challenging aspects, to the readers at one place. The recent enhancement of integrating drone with the Internet of things (IoT) technology promises tremendous global development. The top applications of the Internet of Drones (IoD) are expected to be infrastructure & building monitoring, fire service systems, insurance investigations, retail fulfillment, agriculture and forensic evidence collections. Conventional drone technology is enhanced with the Internet and other emerging technologies such as cloud computing, big data, artificial intelligence and communication networks which open up for enormous opportunities like ahead for on-demand service-oriented and user-friendly IoD applications. This book presents extensive knowledge about the role of IoT and emerging technology in drone networks. It focuses on major research areas of the Internet of Drones and its related applications. It provides a strong knowledge platform towards the Internet of Drones for graduates, researchers, data scientists, educators and drone hobbyists.

This collection of proceedings from the International Conference on Systems Engineering, Las Vegas, 2014 is orientated toward systems engineering, including topics like aero-space, power systems, industrial automation and robotics, systems theory, control theory, artificial intelligence, signal processing, decision support, pattern recognition and machine learning, information and communication technologies, image processing, and computer vision as well as its applications. The volume's main focus is on models, algorithms, and software tools that facilitate efficient and convenient utilization of modern achievements in systems engineering.

The use of unmanned aerial vehicles (UAVs) or drones for management of crops, livestock, fisheries, forests and other natural resource-based activities represents a new technological frontier and opens up a range of exciting opportunities. The latest issue of *ICT Update* is dedicated to the use of this technology and associated systems in different parts of the world. This issue - available online and in print format in both English and French has been published in collaboration with Esri. It includes 12 articles, one interview and a section featuring selected online resources on the topic. Articles range from the use of UAVs to design an irrigation scheme in Nigeria, to feeding a locust monitoring scheme, from documenting illegal land occupancy in Panama to assisting smallholder farmers in monitoring their crops in Eastern Africa, and more.

Many industries have begun to recognize the potential support that unmanned aerial vehicles (UAVs) offer, and this is no less true for the commercial sector. Current research on this field is narrowly focused on technological development to improve the functionality of delivery and endurance of the drone delivery in logistics, as well as on regulatory challenges posed by such operations. There is a need for further attention to be applied to operational and integration challenges associated with UAVs. *Unmanned Aerial Vehicles in Civilian Logistics and Supply Chain Management* is a collection of innovative research that investigates the opportunities and challenges for the use of UAVs in logistics and supply chain management with a specific aim to focus on the multifaceted impact of drone delivery. While highlighting topics including non-military operations, public management, and safety culture, this book is ideally designed for government administrators, managers, industry professionals, researchers, and students.

Since the revival of maggot therapy in Western wound care approximately thirty years ago, there has been no comprehensive synthesis of what is known about its clinical practice, supply chain management, and social dimensions. This edited volume fills the information vacuum and, importantly, makes the current state of knowledge freely accessible. It is the first to provide sound, evidence-based information and guidance covering the entire supply chain from production to treatment. The chapters are arranged in five parts presenting the latest on clinical practice, the principles of therapeutic action, medicinal maggot production, distribution logistics, and the ethical dimensions of maggot therapy. The contributors have paid particular attention to the challenges encountered in compromised, low-resource healthcare settings such as disasters, conflict, and poverty. There are still many barriers to the widespread uptake of maggot therapy in healthcare settings. This book will be essential reading for a global audience of doctors, nurses, allied healthcare providers, students, and entrepreneurs with an interest in maggot-assisted wound care. It will be the go-to reference for those who plan, regulate, and coordinate healthcare, and want to establish a maggot therapy program, particularly in low- and middle-income and other compromised healthcare settings where maggot therapy can provide much-needed, affordable, and efficacious wound care.

The UAS Pilot Log is one of the first flight logs uniquely designed for the needs of drone operators. After extensive research into record keeping and processes maintained by expert operators, *droneprep.com* designed this log specifically for pilots and operators of unmanned aircraft systems and drones to plan and track critical flight details. As FAA and other government regulations evolve, the UAS Pilot Log will help keep you on top of your record keeping activities. Seamlessly designed to be useful and relevant, this logbook distills complex procedures and processes with simple, easy-to-understand entry pages that can be maintained by any drone operator, regardless of skill level or experience. The result is a flexible yet powerful record that will serve as both a tool to enhance your flying experience and a superb record of exactly what happened on the day of your flight. Now available in multiple colors (Gold, Red, Dark Blue, Dark Grey and Dark Green) to suit any mission.

This book gathers papers from the 11th Construction Industry Development Board (CIDB) Postgraduate Research Conference, held on 28-30 July 2019 in Johannesburg, South Africa. The conference provided an essential forum for reviewing and generating knowledge on Construction 4.0 and, consequently, highlighted processes and practices that allow us to deliver and operate built environment assets more effectively and efficiently by focusing on physical-to-digital and digital-to-physical transformation. The event addressed three broad themes: Industrial production (prefabrication, 3-D printing and assembly, offsite and advanced manufacturing); Cyber-physical systems (actuators, sensors, IoT, robots and cobots for repetitive and dangerous tasks, and drones for mapping, progress monitoring, safety and quality inspections, lifting, moving and positioning); and Technologies (digital

ecosystems, digital platforms, BIM, video and laser scanning, AI and cloud computing, big data and data analytics, reality capture, blockchain, simulation, virtual and augmented reality, data standards and interoperability, and vertical and horizontal integration). Given its scope, the book will be of interest to all construction industry and architectural professionals who want to learn about cutting-edge technologies applied to construction

As with other transportation methods, safety issues in aircraft can result in a total loss of life. Recently, the air transport industry has come under immense scrutiny after several deaths occurred due to aircraft design and airlines that allowed improperly inspected aircraft to fly. Spacecraft too have found errors in system software that could lead to catastrophic failure. It is imperative that the aviation and aerospace industries continue to revise and refine safety protocols from the construction and design of aircraft, to secure and improve aviation systems, and to test and inspect aircraft. The *Research Anthology on Reliability and Safety in Aviation Systems, Spacecraft, and Air Transport* is a vital reference source that examines the latest scholarly material on the use of adaptive and assistive technologies in aviation to establish clear guidelines for the design and implementation of such technologies to better serve the needs of both military and civilian pilots. It also covers new information technology use in aviation systems to streamline the cybersecurity, decision making, planning, and design processes within the aviation industry. Highlighting a range of topics such as air navigation systems, computer simulation, and airline operations, this multi-volume book is ideally designed for pilots, scientists, engineers, aviation operators, air traffic controllers, air crash investigators, teachers, academicians, researchers, and students.

The 'Web Intelligence for Drones' project targeted the development of a method to retrieve information from the web on businesses based in EU countries that have their main activity in the sector of civil unmanned aerial systems (UAS) also known as 'drones'. The study presents a novel methodology and the tools developed to identify drone companies through the web and to extract company-relevant information from their websites. The method was developed with a perspective of generalisation in mind (across countries and across economic sectors) wherever possible. It has already been fully applied to three European countries (Spain, Italy and Ireland), and the results are presented in this report.

This book gathers papers presented at the 11th International Conference on Construction in the 21st Century, held in London in 2019. Bringing together a diverse group of government agencies, academics, professionals, and students, the book addresses issues related to construction safety, innovative technologies, lean and sustainable construction, international construction, improving quality and productivity, and innovative materials in the construction industry. In addition, it highlights international collaborations between various disciplines in the areas of construction, engineering, management, and technology. The book demonstrates that, as the industry moves forward in an ever-complex global economy, multi-national collaboration is crucial, and its future growth will undoubtedly depend on international teamwork and alliances.

Unmanned aerial vehicles (UAV) have already become an affordable and cost-efficient tool to quickly map a targeted area for many emerging applications in the arena of ecological monitoring and biodiversity conservation. Managers, owners, companies, and scientists are using professional drones equipped with high-resolution visible, multispectral, or thermal cameras to assess the state of ecosystems, the effect of disturbances, or the dynamics and changes within biological communities *inter alia*. We are now at a tipping point on the use of drones for these type of applications over natural areas. UAV missions are increasing but most of them are testing applicability. It is time now to move to frequent revisiting missions, aiding in the retrieval of important biophysical parameters in ecosystems or mapping species distributions. This Special Issue shows UAV applications contributing to a better understanding of biodiversity and ecosystem status, threats, changes, and trends. It documents the enhancement of knowledge in ecological integrity parameters mapping, long-term ecological monitoring based on drones, mapping of alien species spread and distribution, upscaling ecological variables from drone to satellite images: methods and approaches, rapid risk and disturbance assessment using drones, mapping albedo with UAVs, wildlife tracking, bird colony and chimpanzee nest mapping, habitat mapping and monitoring, and a review on drones for conservation in protected areas.

This book is used at the graduate or advanced undergraduate level and many others. Manned and unmanned ground, aerial and marine vehicles enable many promising and revolutionary civilian and military applications that will change our life in the near future. These applications include, but are not limited to, surveillance, search and rescue, environment monitoring, infrastructure monitoring, self-driving cars, contactless last-mile delivery vehicles, autonomous ships, precision agriculture and transmission line inspection to name just a few. These vehicles will benefit from advances of deep learning as a subfield of machine learning able to endow these vehicles with different capability such as perception, situation awareness, planning and intelligent control. Deep learning models also have the ability to generate actionable insights into the complex structures of large data sets. In recent years, deep learning research has received an increasing amount of attention from researchers in academia, government laboratories and industry. These research activities have borne some fruit in tackling some of the challenging problems of manned and unmanned ground, aerial and marine vehicles that are still open. Moreover, deep learning methods have been recently actively developed in other areas of machine learning, including reinforcement training and transfer/meta-learning, whereas standard, deep learning methods such as recent neural network (RNN) and coevolutionary neural networks (CNN). The book is primarily meant for researchers from academia and industry, who are working on in the research areas such as engineering, control engineering, robotics, mechatronics, biomedical engineering, mechanical engineering and computer science. The book chapters deal with the recent research problems in the areas of reinforcement learning-based control of UAVs and deep learning for unmanned aerial systems (UAS) The book chapters present various techniques of deep learning for robotic applications. The book chapters contain a good literature survey with a long list of references. The book chapters are well written with a good exposition of the research problem, methodology, block diagrams and mathematical techniques. The book chapters are lucidly illustrated with numerical examples and simulations. The book chapters discuss details of applications and future research areas.

UNMANNED AERIAL VEHICLES FOR INTERNET OF THINGS This comprehensive book deeply discusses the theoretical and technical issues of unmanned aerial vehicles for deployment by industries and civil authorities in Internet of Things (IoT) systems. Unmanned aerial vehicles (UAVs) has become one of the rapidly growing areas of technology, with widespread applications covering various domains. UAVs play a very important role in delivering Internet of Things (IoT) services in small and low-power devices such as sensors, cameras, GPS receivers, etc. These devices are energy-constrained and are unable to communicate over long distances. The UAVs work dynamically for IoT applications in which they collect data and transmit it to other de-

vices that are out of communication range. Furthermore, the benefits of the UAV include deployment at remote locations, the ability to carry flexible payloads, reprogrammability during tasks, and the ability to sense for anything from anywhere. Using IoT technologies, a UAV may be observed as a terminal device connected with the ubiquitous network, where many other UAVs are communicating, navigating, controlling, and surveilling in real time and beyond line-of-sight. The aim of the 15 chapters in this book help to realize the full potential of UAVs for the IoT by addressing its numerous concepts, issues and challenges, and develops conceptual and technological solutions for handling them. Applications include such fields as disaster management, structural inspection, goods delivery, transportation, localization, mapping, pollution and radiation monitoring, search and rescue, farming, etc. In addition, the book covers: Efficient energy management systems in UAV-based IoT networks IoT enabled UAVs Mind-controlled UAV using Brain-Computer Interface (BCI) The importance of AI in realizing autonomous and intelligent flying IoT Blockchain-based solutions for various security issues in UAV-enabled IoT The challenges and threats of UAVs such as hijacking, privacy, cyber-security, and physical safety. Audience: Researchers in computer science, Internet of Things (IoT), electronics engineering, as well as industries that use and deploy drones and other unmanned aerial vehicles.

This book provides an introduction to the use of unmanned aerial vehicles (UAVs) for the geographic observation and spatial analysis of urban areas. The velocity of urban change necessitates observation platforms that not only enhance situational awareness for planning and allied analytical efforts, but also provide the ability to rapidly and inexpensively collect data and monitor change. UAVs can accomplish both of these tasks, but their use in urban environments is loaded with social, operational, regulatory and technical challenges that must be addressed for successful deployments. The book provides a resource for educators and students who work with geographic information and are seeking to enhance these data with the use of unmanned aerial vehicles. Topics covered include, 1) a primer on UAVs and the many different ways they can be used for geographic observation, 2) a detailed overview on the use of aviation maps and charts for operating UAVs in complex urban airspace, 3) techniques for integrating UAV-derived data with more traditional geographic information, 4) application of spatial analytical tools for urban and environmental planning, and 5) an exploration of privacy and public safety issues associated with UAV operation.

"As a companion piece to Volume 133 of this series, this volume extends our discussion of the use of unmanned aerial vehicles, commonly referred to as drones, by the U.S. government. While the previous volume focused on the use of drone attacks to protect American interests and the American people from threats emanating from abroad, this volume addresses domestic uses of drones"--

In October 2017, the Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) in partnership with the NEPAD Agency, conducted a survey to understand the perceptions surrounding the use of drones for agriculture. Approximately 13,000 individuals (mainly English and French-speaking readers of CTA e-publications or members of CTA-managed communities of practice) received an invitation to participate in the survey. The aim was to understand the general perceptions on the use of drones amongst stakeholders in agriculture and development cooperation with an emphasis on African regions. 16%, or a total of 1432 individuals (of whom 91% have worked or are currently working in Africa), completed the survey and had at least a working knowledge of drones in agriculture.

This book tackles the regulatory issues of Unmanned Aerial Systems (UAS) or Remotely-Piloted Aerial Systems (RPAS), which have profound consequences for privacy, security and other fundamental liberties. Collectively known as "drones," they were initially deployed for military purposes: reconnaissance, surveillance and extrajudicial executions. Today, we are witnessing a growth of their use into the civilian and humanitarian domain. They are increasingly used for goals as diverse as news gathering, aerial inspection of oil refinery flare stacks, mapping of the Amazonian rain-forest, crop spraying and search and rescue operations. The civil use of drones is becoming a reality in the European Union and in the US. The drone revolution may be a new technological revolution. Proliferation of the next generation of "recreational" drones show how drones will be sold as any other consumer item. The cultural perception of the technology is shifting, as drones are increasingly being used for humanitarian activities, on one hand, but they can also firmly be situated in the prevailing modes of postmodern governance on the other hand. This work will be of interest to researchers in Criminology and Criminal Justice interested in issues related to surveillance, security, privacy, and technology. It will also provide a criminological background for related legal issues, such as privacy law, aviation law, international criminal law, and comparative law.

Do you have specific tactics to survive this era of digital transformation? How can a firm extract powerful insights from responding to and implementing new-age technologies? Some companies adapt. Others miss the boat. Knowledge of what technology to employ, how to employ it, when and why it should be employed is a must in this era. Intelligent Marketing emphasizes organizing resources, developing capabilities and designing strategies for deploying new-age technologies to ensure a healthy financial outcome for all the key stakeholders, and a better quality of life for the society and community.

Unmanned Aerial Systems: Theoretical Foundation and Applications presents some of the latest innovative approaches to drones from the point-of-view of dynamic modeling, system analysis, optimization, control, communications, 3D-mapping, search and rescue, surveillance, farmland and construction monitoring, and more. With the emergence of low-cost UAS, a vast array of research works in academia and products in the industrial sectors have evolved. The book covers the safe operation of UAS, including, but not limited to, fundamental design, mission and path planning, control theory, computer vision, artificial intelligence, applications requirements, and more. This book provides a unique reference of the state-of-the-art research and development of unmanned aerial systems, making it an essential resource for researchers, instructors and practitioners. Covers some of the most innovative approaches to drones Provides the latest state-of-the-art research and development surrounding unmanned aerial systems Presents a comprehensive reference on unmanned aerial systems, with a focus on cutting-edge technologies and recent research trends in the area This book focuses on the importance of human factors in the development of reliable and safe unmanned systems. It discusses current challenges such as how to improve perceptual and cognitive abilities of robots, develop suitable synthetic vision systems, cope with degraded reliability of unmanned systems, predict robotic behavior in case of a loss of communication, the vision for future soldier-robot teams, human-agent teaming, real-world implications for human-robot interaction, and approaches to standardize both display and control of technologies across unmanned systems. Based on the AHFE 2016 International Conference on Human Factors in Robots and Unmanned Systems, held on July 27-31, 2016, in Walt Disney World®, Florida, USA, this book is expected to foster new discussion and stimulate new ideas towards the development of more reliable, safer, and

functional devices for carrying out automated and concurrent tasks.

The advent of the emerging fifth generation (5G) networks has changed the paradigm of how computing, electronics, and electrical (CEE) systems are interconnected. CEE devices and systems, with the help of the 5G technology, can now be seamlessly linked in a way that is rapidly turning the globe into a digital world. Smart cities and internet of things have come to stay but not without some challenges, which must be discussed. The Handbook of Research on 5G Networks and Advancements in Computing, Electronics, and Electrical Engineering focuses on current technological innovations as the world rapidly heads towards becoming a global smart city. It covers important topics such as power systems, electrical engineering, mobile communications, network, security, and more. This book examines vast types of technologies and their roles in society with a focus on how each works, the impacts it has, and the future for developing a global smart city. This book is ideal for both industrial and academic researchers, scientists, engineers, educators, practitioners, developers, policymakers, scholars, and students interested in 5G technology and the future of engineering, computing, and technology in human society.

Automation and Robotics in the Architecture, Engineering, and Construction Industry provides distinct and unified insight into current and future construction robotics, offering readers a comprehensive perspective for constructing a road map and illuminating improvements for a successful transition towards construction robotization. The book covers the fundamentals and applications of robotics, autonomous vehicles, and human-perceptive machines at construction sites. Through theoretical and experimental analyses, it examines the potential of robotics and automated systems for current and future fieldwork operations and identifies the factors that determine their implementation pace, adoption scale, and ubiquity throughout the industry. The book evaluates the technical, societal, and economic aspects of adopting robots in construction, both as standalone and collaborative systems, which in return can afford the opportunity to investigate these AI-enabled machines more systematically. Provides promising solutions to transform and reinvent the construction industry; Discusses the application of construction site robotics and automation; Includes case studies from around the world.

"The field of aerospace is multidisciplinary, covering a large variety of products, disciplines and domains, not merely in design and engineering but in many related supporting activities. The interaction of these diverse components enables the aerospace industry to develop innovative and technologically advanced vehicles and systems. The Aerospace Series aims to be a practical, topical, and relevant series of books aimed at people working in the aerospace industry, including engineering professionals and operators, engineers in academia, and allied professions such as commercial and legal executives. The range of topics is intended to be wide ranging, covering design and development, manufacture, operation and support of aircraft, as well as infrastructure operations and advances in research and technology. Unmanned air vehicles are a growing and increasingly accepted part of the aerospace environment. Small UAVs equipped with appropriate sensors can carry out leisure, small industry and official roles in the visible and IR spectrum. As their use expands, unmanned air systems will inevitably become involved with, and potentially conflict with, manned vehicles - as has already been demonstrated by numerous encounters near airports. There will need to be new regulations to allow the co-existence of UAVs with GAS, rotary wing, regional and transnational operations. These new regulations could require changes to on-board navigation and proximity warning systems as well as to ATM practices and standards. This book - UAS Integration into Civil Aerospace - explores the integration of unmanned aircraft into controlled and uncontrolled airspace. It provides a comprehensive overview of regulatory and policy efforts required to move towards full airspace integration, as well as the technology that must be developed and approved for full operation of UAV systems. It also addresses the critical questions of cybersecurity and cyber resilience as they relate to UAV airspace integration. The global ATM system depends heavily on electronic communications and interconnectivity, any interruption of which could lead to potentially catastrophic consequences. With the rapid evolution of UAV technology, aviation regulators at international, national, and local levels have struggled to keep pace with appropriate rules and standards to ensure that UAV systems operate in shared airspace in a safe, equitable, and efficient manner. This book outlines a path forward that minimizes the safety risks while maximizing potential economic benefits for all users of the airspace. In line with the mission of the Aerospace Series, it combines elements of engineering and emerging technology with an accessible discussion of the important related legal and regulatory issues"--

Unmanned Aircraft Systems are an integral part of the US national critical infrastructure. The authors have endeavored to bring a breadth and quality of information to the reader that is unparalleled in the unclassified sphere. This textbook will fully immerse and engage the reader / student in the cyber-security considerations of this rapidly emerging technology that we know as unmanned aircraft systems (UAS). The first edition topics covered National Airspace (NAS) policy issues, information security (INFOSEC), UAS vulnerabilities in key systems (Sense and Avoid / SCADA), navigation and 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. This second edition discusses state-of-the-art technology issues facing US UAS designers. It focuses on counter unmanned aircraft systems (C-UAS) - especially research designed to mitigate and terminate threats by SWARMS. Topics include high-altitude platforms (HAPS) for wireless communications; C-UAS and large scale threats; acoustic countermeasures against SWARMS and building an Identify Friend or Foe (IFF) acoustic library; updates to the legal / regulatory landscape; UAS proliferation along the Chinese New Silk Road Sea / Land routes; and ethics in this new age of autonomous systems and artificial intelligence (AI).

This book explores the economic and broader societal rationale for using unmanned aerial vehicle (UAV) or "drone" technologies as a complement to the current transport and logistics systems in several use cases in East Africa. The specific use cases examined include medical goods deliveries, food aid delivery, land mapping and risk assessment, agriculture, and transport and energy infrastructure inspection. Across these applications, the case for using UAVs is examined within the context of logistics objectives—total operating costs, speed, availability, and flexibility—as well as human, or societal, objectives. In the public health use case, as more low- and middle-income countries explore opportunities to improve efficiency and performance in their health supply chains and diagnostics networks, they face myriad choices about how best to use UAVs to improve product availability and public health outcomes and to reach the last mile. The high-level findings from this analysis are that, if examining commodity categories individually and looking exclusively at costs, delivery with UAVs in general is still more expensive for most categories. Although the cost is still higher, the

most cost-effective use case examples include the transport of laboratory samples to selected destinations and delivery of life-saving items and blood. However, "layering" several use cases can provide efficiencies and cost savings by allocating fixed costs across a greater number of flights and maximizing capacity and time utilization. From the perspective of public decision-makers, the cost effectiveness of UAVs cannot be analyzed with-

out looking at the public health benefits, which may be substantial. Drone application in the other use cases examined in this book, such as mapping, risk assessment, and agriculture, is relatively more common than cargo drone operations, and the existing pilot initiatives in East Africa have delivered impressive results for speed and quality (precision). Food aid delivery by drones is still mostly at a planning, rather than implementation, stage. Drone applications are rapidly evolving, and several use cases could gain impact and scale over the coming years.