

## The Global Uav Market 2015 2025

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## **Drones and Terrorism**

This book is for strategists, leaders, managers, entrepreneurs who are so caught up in the daily pressures of business that they're missing key signals of their future reality. It's like driving a car heads down, staring at the dashboard, rather than heads up, looking through the windshield. We need to do both. The book is devoted to the practice of sensing, or scanning the horizon for signs of emerging trends. The sooner we see them, the better our response. Each chapter starts with a set of signals, data we observed that, taken together, helped us to reveal a trend. The impact of new technology on strategy is a theme of the book, and each chapter looks at how organizations are using new technologies to their advantage. The goal is to spark meaningful conversations within organizations: How could we participate in the collaborative economy? What could our CIO and our CMO be doing to drive strategy, innovation, and revenue growth? What could we do to leverage the Internet of Things and intelligent automation as catalysts of invention? Could we use MOOCs as pivots for corporate training, recruiting, and marketing? How might technology transform the manufacturing process, our supply chain, and the knowledge work that we do? Could we take advantage of the renaissance in domestic energy (oil and gas)? What could we be doing to counter cyber crime? What is our organization doing to tune into signals of emerging trends that may be relevant to us? In an environment where the pace of change is accelerating, sensing has become an essential discipline for all organizations. No

matter your role in an organization, sensing emerging trends can make you more effective and more valuable in your work. If you've been working too heads-down lately and feel overwhelmed by data and deadlines, then this book is for you. It's a quick read designed to give you a heads up on your horizon.

### **Signals for Strategists**

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.

## **E-agriculture in action: Drones for agriculture**

RAND Corporation researchers assessed the impact that certain remotely piloted aircraft (RPA) governed by the Missile Technology Control Regime (MTCR) have on U.S. national security interests. In this report, they document their findings.

## **Predator**

Documents the lesser-known origin story of the Predator drone, describing the unusual individuals who shaped its innovation, the considerable resistance that hampered its development and the ways in which it has transformed modern warfare. By the author of The Dream Machine.

## **Small Unmanned Aircraft**

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.

### **Drones and Support for the Use of Force**

### **Aerial Photography and Videography Using Drones**

The past decade has seen tremendous interest in the production and refinement of unmanned aerial vehicles, both fixed-wing, such as airplanes and rotary-wing, such as helicopters and vertical takeoff and landing vehicles. This book provides a diversified survey of research and development on small and miniature unmanned

aerial vehicles of both fixed and rotary wing designs. From historical background to proposed new applications, this is the most comprehensive reference yet.

### **Aerospace International**

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.

### **Aerospace America**

Unmanned Aircraft Systems delivers a much needed introduction to UAV System technology, taking an integrated approach that avoids compartmentalising the subject. Arranged in four sections, parts 1-3 examine the way in which various engineering disciplines affect the design, development and deployment of UAS. The fourth section assesses the future challenges and opportunities of UAS. Technological innovation and increasingly diverse applications are two key drivers of the rapid expansion of UAS technology. The global defence budget for UAS procurement is expanding, and in the future the market for civilian UAVs is

expected to outmatch that of the military. Agriculture, meteorology, conservation and border control are just a few of the diverse areas in which UAVs are making a significant impact; the author addresses all of these applications, looking at the roles and technology behind both fixed wing and rotorcraft UAVs. Leading aeronautical consultant Reg Austin co-founded the Bristol International Remotely Piloted Vehicle (RPV) conferences in 1979, which are now the longest-established UAS conferences worldwide. In addition, Austin has over 40 years' experience in the design and development of UAS. One of Austin's programmes, the "Sprite UAV System" has been deployed around the world and operated by day and night, in all weathers.

### **Ethics and Civil Drones**

Absolutely no experience needed! Build your drone, step-by-step, with this full-color, hands-on guide! You've heard about drones. You've seen drones. Now, build your own—it's a lot easier than you think! Drones are the newest frontier for the DIY/maker community, and you don't need to be a technical expert to build one. John Baichtal, the #1 author of hardware hacking books for beginners, will teach you all the skills you need. First, Baichtal shows you the amazing drones others have built. Then, he walks you through several complete projects: quadcopters, UAVs, ROVs, and more. Not ready to start from scratch? No problem: Baichtal helps you choose from today's best new kits. Hundreds of full-color step-by-step photos

teach you every step, every skill. When you're ready for more advanced concepts, Baichtal explains them in plain English. Discover what drones are and why they're so exciting Explore today's most imaginative projects, from 3D-printed mini quadcopters to floating robot armies Compare kits, from \$200 up: Parallax ELEV-8, DJI Phantom 2 Vision+, OpenROV, Actobotics Nomad, Brooklyn Aerodrome Flack, and more Create your own practical Drone Builder's Workbench Build complete rocket, blimp, waterborne, and automotive drones Construct both fully autonomous and radio-controlled drones Choose and assemble your chassis (airframe), motor, props, flight control, power system, accessories, and software Integrate Arduino to make radio-controlled drones operate autonomously Teach a drone to navigate via RFID tags Learn all the basic electronics and programming you'll need

### **The PLA's Unmanned Aerial Systems - New Capabilities for a New Era of Chinese Military Power**

This expansive reference on the use of clean energy technologies in the aviation industry focuses on tools and solutions for maximizing the energy efficiency of aircrafts, airports, and other auxiliary components of air transit. Key topics range from predicting impacts of avionics and control systems to energy/exergy performance analyses of flight mechanics and computational fluid dynamics. The book includes findings both from experimental investigations and functional extant

systems, ranging from propulsion technologies for aerospace vehicles to airport design to energy recovery systems. Engineers, researchers and students will benefit from the broad reach and numerous engineering examples provided.

## **Advances in Unmanned Aerial Vehicles**

### **Assessment of the Proliferation of Certain Remotely Piloted Aircraft Systems**

With the extraordinary growth of Unmanned Aerial Vehicles (UAV) in research, military, and commercial contexts, there has been a need for a reference that provides a comprehensive look at the latest research in the area. Filling this void, *Smart Autonomous Aircraft: Flight Control and Planning for UAV* introduces the advanced methods of flight control, planning, situation awareness, and decision making. This book is among the first to emphasize the theoretic and algorithmic side of control and planning in dynamic and uncertain environments. Focused on the latest theory that informs flight planning and control, it describes the use of computational intelligence modeling, control, and planning. Providing background information on fixed-wing unmanned aerial vehicles, the book proceeds from the basics to advanced methods, from classical to the most innovative. It examines the

current state of the art and covers the topics required to assess the autonomy of UAVs. An ideal resource for researchers and practitioners working on solutions for implementing advanced capabilities in UAVs, the book details the mathematical underpinnings of each concept and includes illustrative case studies to reinforce understanding. Providing an interdisciplinary point of view on autonomous aircraft, the book reviews the different methodologies of control and planning used to create smart autonomous aircraft. The topics covered in this book have been derived from the author's research and teaching duties in smart aerospace and autonomous systems and from literature survey. Assuming an understanding of engineering at the undergraduate level, this book is suitable for advanced-level graduate students and PhD students enrolled in UAV or aerial robotics courses.

### **Drones**

The FAO-ITU E-agriculture strategy guide (available at <http://www.fao.org/3/a-i5564e.pdf>) is actively being used to assist countries in the successful identification, development and implementation of sustainable ICT solutions for agriculture. The use of unmanned aerial vehicles (UAVs), also known as drones, and connected analytics has great potential to support and address some of the most pressing problems faced by agriculture in terms of access to actionable real-time quality data. Goldman Sachs predicts that the agriculture sector will be the second largest user of drones in the world in the next five years. Sensor networks based

on the Internet of things (IoT) are increasingly being used in the agriculture sector to meet the challenge of harvesting meaningful and actionable information from the big data generated by these systems. This publication is the second in the series titled E-agriculture in action (2016), launched by FAO and ITU, and builds on the previous FAO publications that highlight the use of ICT for agriculture such as Mobile technologies for agriculture and rural development (2012), Information and communication technologies for agriculture and rural development (2013) and Success stories on information and communication technologies for agriculture and rural development (2015). The ultimate aim is to promote successful, scalable, sustainable and replicable ICT for agriculture (ICT4Ag) solutions.

### **Retos del derecho ante las nuevas amenazas**

### **Introduction to Information Systems, 6th Edition**

This book presents, in a comprehensive way, current unmanned aviation regulation, airworthiness certification, special aircraft categories, pilot certification, federal aviation requirements, operation rules, airspace classes and regulation development models. It discusses unmanned aircraft systems levels of safety derived mathematically based on the corresponding levels for manned aviation. It

provides an overview of the history and current status of UAS airworthiness and operational regulation worldwide. Existing regulations have been developed considering the need for a complete regulatory framework for UAS. It focuses on UAS safety assessment and functional requirements, achieved in terms of defining an “Equivalent Level of Safety”, or ELOS, with that of manned aviation, specifying what the ELOS requirement entails for UAS regulations. To accomplish this, the safety performance of manned aviation is first evaluated, followed by a novel model to derive reliability requirements for achieving target levels of safety (TLS) for ground impact and mid-air collision accidents. It discusses elements of a viable roadmap leading to UAS integration in to the NAS. For this second edition of the book almost all chapters include major updates and corrections. There is also a new appendix chapter.

### **Cruise Missile Proliferation in the 1990s**

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.

### **Aviation Week & Space Technology**

Combat drones are transforming attitudes about the use of military force. Military casualties and the costs of conflict sap public support for war and for political and military leaders. Combat drones offer an unprecedented ability to reduce these costs by increasing accuracy, reducing the risks to civilians, and protecting military

personnel from harm. These advantages should make drone strikes more popular than operations involving ground troops. Yet many critics believe drone warfare will make political leaders too willing to authorize wars, weakening constraints on the use of force. Because combat drones are relatively new, these arguments have been based on anecdotes, a handful of public opinion polls, or theoretical speculation. *Drones and Support for the Use of Force* uses experimental research to analyze the effects of combat drones on Americans' support for the use of force. The authors' findings—that drones have had important but nuanced effects on support for the use of force—have implications for democratic control of military action and civil-military relations and provide insight into how the proliferation of military technologies influences foreign policy.

### **Sustainable Aviation**

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.

### **Sudden Justice**

Con el número 1 de esta nueva Colección sobre Seguridad y Defensa se inaugura su sección jurídica con una obra colectiva en la que, a través de veinte capítulos, se analizan algunos de los retos del Derecho ante los doce riesgos y amenazas recogidos en la “Estrategia de Seguridad Nacional. Un proyecto compartido” (En adelante, ESN), adoptada el pasado 31 de mayo de 2013. Como se indica en la ESN, “Una sociedad responsable y concienciada con su seguridad está en mejores condiciones para hacer frente a los desafíos actuales y ganar en términos de desarrollo y prosperidad [ ]”, por lo que resultaba necesario ofrecer, en el primer número de esta colección, una reflexión jurídica sobre los riesgos y amenazas que

atenazan la seguridad nacional interna e internacional de la mano de grandes expertos en la materia. La presente obra colectiva se estructura en ocho partes: I. VULNERABILIDADES Y SEGURIDAD NACIONAL INTERNA E INTERNACIONAL. II. LAS CIBERAMENAZAS Y OTROS POSIBLES USOS NOCIVOS DE LAS NUEVAS TECNOLOGÍAS. III. EL ESPIONAJE. IV. EL CRIMEN ORGANIZADO Y LA PROLIFERACIÓN DE ARMAS DE DESTRUCCIÓN MASIVA V. INESTABILIDAD ECONÓMICA Y FINANCIERA VI. LOS FLUJOS MIGRATORIOS IRREGULARES. VII. EMERGENCIAS Y CATÁSTROFES VIII. LOS CONFLICTOS ARMADOS. En ellas, de forma transversal e interrelacionada se muestran las claves para dar respuesta a algunos de los efectos que muestran los doce riesgos y amenazas contenidos en la ESN. Como indica la Profesora Dra. Susana De Tomás, Directora de esta obra colectiva y de esta nueva colección, los veinte capítulos que conforman la obra, no deben ser atendidos como compartimentos estancos, sino desde un enfoque integral con el que han de ser atendidos los riesgos y amenazas contenidos en la ESN. En definitiva, constituye un primer acercamiento hacia algunos de los múltiples retos del Derecho ante el cada vez más complejo panorama de seguridad interna e internacional que se enfrenta a nuevos riesgos y amenazas, transfronterizos e interconectados entre sí.

### **Unmanned Aviation**

Autonomous unmanned air vehicles (UAVs) are critical to current and future military, civil, and commercial operations. Despite their importance, no previous

textbook has accessibly introduced UAVs to students in the engineering, computer, and science disciplines--until now. Small Unmanned Aircraft provides a concise but comprehensive description of the key concepts and technologies underlying the dynamics, control, and guidance of fixed-wing unmanned aircraft, and enables all students with an introductory-level background in controls or robotics to enter this exciting and important area. The authors explore the essential underlying physics and sensors of UAV problems, including low-level autopilot for stability and higher-level autopilot functions of path planning. The textbook leads the student from rigid-body dynamics through aerodynamics, stability augmentation, and state estimation using onboard sensors, to maneuvering through obstacles. To facilitate understanding, the authors have replaced traditional homework assignments with a simulation project using the MATLAB/Simulink environment. Students begin by modeling rigid-body dynamics, then add aerodynamics and sensor models. They develop low-level autopilot code, extended Kalman filters for state estimation, path-following routines, and high-level path-planning algorithms. The final chapter of the book focuses on UAV guidance using machine vision. Designed for advanced undergraduate or graduate students in engineering or the sciences, this book offers a bridge to the aerodynamics and control of UAV flight.

### **On Integrating Unmanned Aircraft Systems into the National Airspace System**

Drone technologies have constantly been developing for over 100 years. The latest models exhibit a previously unseen set of specifications available to the end users. The collective effort of distinguished international researchers, within the field of drone technologies, has been incorporated into this textbook suitable to the broader audience. The book has been edited by Prof. George Dekoulis, Aerospace Engineering Institute (AEI), Cyprus, an expert on state-of-the-art implementations of reconfigurable space engineering systems. The book consists of four main sections, namely, "Introduction," "Drone History," "Drone Design," and "Drone Applications." We hope this book will be beneficial to professionals, researchers, and academicians and, moreover, to inspire the younger generations into pursuing relevant academic studies and professional careers within the drone industry.

### **Drones**

### **Unmanned Aerial Systems Conceptual Design**

### **Unmanned Aerial Vehicle: Applications in Agriculture and Environment**

Newcome traces the family tree of unmanned aircraft all the way back to their roots as aerial torpedoes, which were the equivalent of today's cruise missiles. He discusses the work of leading aerospace pioneers whose efforts in the area of unmanned aviation have largely been ignored by history.

### **Limiting Armed Drone Proliferation**

This book showcases how new and emerging technologies like Unmanned Aerial Vehicles (UAVs) are trying to provide solutions to unresolved socio-economic and environmental problems. Unmanned vehicles can be classified into five different types according to their operation. These five types are unmanned ground vehicles, unmanned aerial vehicles, unmanned surface vehicles (operating on the surface of the water), unmanned underwater vehicles, and unmanned spacecraft. Unmanned vehicles can be guided remotely or function as autonomous vehicles. The technology has a wide range of uses including agriculture, industry, transport, communication, surveillance and environment applications. UAVs are widely used in precision agriculture; from monitoring the crops to crop damage assessment. This book explains the different methods in which they are used, providing step-by-step image processing and sample data. It also discusses how smart UAVs will provide unique opportunities for manufacturers to utilise new technological trends to overcome the current challenges of UAV applications. The book will be of great interest to researchers engaged in forest carbon measurement, road patrolling,

plantation monitoring, crop yield estimation, crop damage assessment, terrain modelling, fertilizer control, and pest control.

## **Smart Autonomous Aircraft**

## **Unmanned Aircraft Systems**

## **Aircraft & Aerospace Asia-Pacific**

The multi-billion dollar business of the international conventional arms trade involves virtually every country in the world. Around the globe, people's lives are being irrevocably changed by the effects of guns, tanks, and missiles. These weapons have the potential to cause a deadly and current threat - one responsible for hundreds of thousands of deaths a year. This succinct and accessible new book explores the complexities and realities of the global conventional weapons trade. The first book on the subject in nearly a decade, *The International Arms Trade* provides an engaging introduction to the trade, the effects, and the consequences of these weapons. The authors trace the history of the arms trade and examine how it has evolved since the end of the Cold War. In particular, they assess the role

of the largest arms exporters and importers, the business of selling conventional arms around the world, and shed new light on the illicit arms trade and the shadowy dealers who profit from their deadly commerce. The book also looks closely at the devastating effect the business can have on countries, societies, and individuals and concludes with an evaluation of the various existing control strategies and the potential for future control opportunities. The International Arms Trade will be invaluable for students and scholars of international relations and security studies, and for policymakers and anyone interested in understanding more about the conventional arms trade.

## **Drones and Unmanned Aerial Systems**

The goal of Introduction to Information Systems is to teach all business majors, especially undergraduates, how to use information technology to master their current or future jobs and to help ensure the success of their organization. To accomplish this goal, this text helps students become informed users; that is, persons knowledgeable about information systems and information technology. The focus is not merely placed on learning the concepts of information technology, but rather on applying those concepts to facilitate business processes. The content concentrates on placing information systems in the context of business, so that students will more-readily grasp the concepts presented in the text. The theme of this book is What's In IT for Me? This question is asked by all students who take

this course. The book will show you that IT is the backbone of any business, whether a student is majoring in Accounting, Finance, Marketing, Human Resources, or Production/Operations Management.

## **The Budget and Economic Outlook**

Less than a month after the September 11th attacks, a tiny, CIA-controlled Predator drone flew over Kandahar, searching out the home of the Taliban supreme commander Mullah Mohammed Omar. A lack of understanding of the drone's capabilities combined with a messy chain of command allowed Omar to escape, but the strike on a nearby convoy vehicle became the Predator's first lethal action. Since then, the use of armed drones has become the dominant American way of war. In *Sudden Justice*, award-winning investigative journalist Chris Woods explores the secretive history of the United States' use of armed drones and their key role not only on today's battlefields, but also in a covert targeted killing project that has led to the deaths of thousands. The CIA nurtured and developed drones before the War on Terror ever began, seeking a platform from which it could monitor its targets and act lethally and instantly on the intelligence it gathered. Since then, remotely piloted aircraft have played a critical role in America's global counter-terrorism operations and have been deployed to devastating effect in conventional wars in Afghanistan, Iraq, and Libya. Drone crews, analysts, intelligence officials and military commanders all speak frankly to

the author about how armed drones revolutionized warfare--and the unexpected costs to some of those involved. But there is another, secret war--one in which drones scour the skies of Yemen, Pakistan, and Somalia in search of militant and terrorist targets. The American government insists that this hidden war is legal. The CIA even claims that its armed drones are "the most precise weapon ever invented," so perfect that civilians are no longer killed. Sudden Justice describes the reality of this secret drone war, one in which hundreds of civilians have died, and the wider strategic interests of the United States may have been jeopardized. The ability to target its enemies from the safety of headquarters thousands of miles from the battlefield has profound implications for how America conducts its foreign policy, and for how it is seen in the world. As the first book to comprehensively assemble and analyze the facts about the U.S. drone program, Sudden Justice is the essential guide for understanding its implications.

### **The UAV Imaging-Sensor Starter Kit**

The Persian Gulf War changed the worldwide perception of the spread of ballistic missiles to countries like Iraq. Access to a new type of weapon--cruise missiles--poses an even greater threat.

### **Drones For Dummies**

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).

### **Building Your Own Drones**

Inexpensive consumer drones that offer ease of flight and high-quality photography and videography have exploded on the market recently, creating what can only be described as drone mania amongst a diverse range of potential users. Because camera-carrying drones still really only exist on the edge between hobby and the mainstream, there is still a lot of confusion about what these small drones are capable of doing. The decision to purchase one is just the first in a long stream of things a new owner must think about. *Aerial Photography and Videography Using Drones* is designed to help you make the most of the opportunities these nimble, affordable, and accessible flying machines have created for aerial photography and videography. Within this definitive guide, you'll learn about the following:

- the current state of camera drone equipment
- how to become a competent drone operator
- tips for getting the best aerial still images and videos
- stories from aerial photographers and videographers from around the world
- the current regulatory state for drone usage in the U.S.
- techniques demonstrated in several videos you can download from [peachpit.com](http://peachpit.com), along with pre-flight checklists and worksheets for flight training.

### **Jane's All the World's Aircraft**

The Chinese People's Liberation Army (PLA) continues to work diligently on all aspects of their aerospace forces. This includes areas not only of traditional

aircraft, but also in more modern, and some cutting edge, technologies. The UAV is one area in which the People's Republic of China, and the PLA in specific, has invested significant time and effort. While we recognize that the term "unmanned" is the common and official term, it is rather misleading in the fact that humans, at least up until today, still play a critical role in their operations. Nonetheless, we will not buck convention at this moment, and continue to use "unmanned" for the 'U' in UAV, for this paper. The PRC is the world's largest producer of UAVs at this time, and captures a vast portion of the commercial market, as well as the military one. While it is important to keep the commercial aspects in mind, this particular paper will focus on military UAVs, their development, deployments, and current and potential uses on the battlefield of today and tomorrow. The paper seeks to serve as a starting point to understand this growing field, and to give analysts a common baseline from which to work, and from which to judge growth, both rapidity and complexity, in the future.

### **Military Review**

### **The International Arms Trade**

Given the popularity of drones and the fact that they are easy and cheap to buy, it

is generally expected that the ubiquity of drones will significantly increase within the next few years. This raises questions as to what is technologically feasible (now and in the future), what is acceptable from an ethical point of view and what is allowed from a legal point of view. Drone technology is to some extent already available and to some extent still in development. The aim and scope of this book is to map the opportunities and threats associated with the use of drones and to discuss the ethical and legal issues of the use of drones. This book provides an overview of current drone technologies and applications and of what to expect in the next few years. The question of how to regulate the use of drones in the future is addressed, by considering conditions and contents of future drone legislation and by analyzing issues surrounding privacy and safeguards that can be taken. As such, this book is valuable to scholars in several disciplines, such as law, ethics, sociology, politics and public administration, as well as to practitioners and others who may be confronted with the use of drones in their work, such as professionals working in the military, law enforcement, disaster management and infrastructure management. Individuals and businesses with a specific interest in drone use may also find in the nineteen contributions contained in this volume unexpected perspectives on this new field of research and innovation. Bart Custers is Associate Professor and Head of Research at eLaw, the Center for Law and Digital Technologies at Leiden University, The Netherlands. He has presented his work at international conferences in the United States, China, Japan, the Middle East and throughout Europe and has published over 80 scientific, professional and

popularizing publications, including three books.

## **The Future of Drone Use**

### **Unmanned Aircraft Systems in the Cyber Domain**

In warzones, ordinary commercially-available drones are used for extraordinary reconnaissance and information gathering. They can also be used for bombings - a drone carrying an explosive charge is potentially a powerful weapon. At the same time asymmetric warfare has become the norm - with large states increasingly fighting marginal terrorist groups in the Middle East and elsewhere. Here, Nicholas Grossman shows how we are entering the age of the drone terrorist - groups such as Hezbollah are already using them in the Middle East. Grossman will analyse the ways in which the United States, Israel and other advanced militaries use aerial drones and ground-based robots to fight non-state actors (e.g. ISIS, al Qaeda, the Iraqi and Afghan insurgencies, Hezbollah, Hamas, etc.) and how these groups, as well as individual terrorists, are utilizing less advanced commercially-available drones to fight powerful state opponents. Robotics has huge implications for the future of security, terrorism and international relations and this will be essential reading on the subject of terrorism and drone warfare.

## **Unmanned Aircraft Systems**

"Taking Flight provides the tools technologists need to begin designing or analyzing the data product of a UAV imager. Covering the basics of target signatures, radiometric propagation, electro-optical systems, UAV platforms, and image quality, it is replete with examples that promote immediate application of the concepts. Reference materials at the end of each chapter, including many links to current systems and platforms, offer further guidance for readers. Engineers and scientists who specify instrument requirements; design, build, or test hardware; or analyze images for commercial, scientific, and military applications will find the book a useful addition to their working library"--

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