The NSSI commandant selects books for the NSSI Space Professional Reading List as recommended reading for DoD space professionals. This annual list gives space professionals a fresh perspective on our important line of work and our chosen profession. The lists are not all-inclusive; the goal is to provide a starting point or to expand existing knowledge and thinking. These lists—complete with book and author descriptions—are distributed not only to all students enrolled in NSSI courses but also to more than 6,000 space and defense professionals across the Department of Defense, including our international partners.

POC: Abby VanDeusen, NSSI Librarian; COMM (719) 556-3478, DSN 834-3478
A FRESH VIEW ON THE OUTER SPACE TREATY

DESCRIPTION

On the occasion of the 50th anniversary of the Outer Space Treaty, this book gives a first insight into where the next generation considers room for further improvement. It offers comprehensive scenarios to cope with upcoming aspects such as providing solutions for the emerging commercial, economic, environmental and social questions. The purpose of this treaty was to avoid conflicting military situations in space. However, 50 years later the Outer Space Treaty is in demand to meet the ever increasing space activities and the different actors involved such as the rise of the private sector players.

--ESPI

SIGNIFICANCE TO THE SPACE PRO COMMUNITY

Significance to the Space Professional: Space is becoming ever more congested and contested, creating commercial friction, national competition, and the potential for military conflict. Diplomatic efforts could do much to reduce friction, encourage healthy competition, and lessen the potential for conflict, and many look to the 50-year-old Outer Space Treaty as a vehicle to achieve those lofty goals. Conversely, violations of the existing treaty have the potential to have the exact opposite effect. This work provides the military space professional with insight into the history and possible future of the Outer Space Treaty, insights that could impact America’s space strategy and policies.

By Annette Froehlich (Editor)
Accessory to War: The Unspoken Alliance Between Astrophysics and the Military

**DESCRIPTION**

Accessory to War is a New York Times best-selling non-fiction text that explores the two-way relationship between astrophysics research and advancements in military technology. The authors cover centuries of overlapping interests and applications of astrophysicists and military leaders; each borrowing technological advancements from the other and applying them in their respective fields. By examining this rich history the authors provide the reader useful context for current and future space research and application to include the idea of a US Space Force within DoD.

**SIGNIFICANCE TO THE SPACE PRO COMMUNITY**

A popular text likely to be read by many non-Astro/non-Space technicians, it will help the military space professional form, in part, the perception of the relationship between space science and military space application. The book provides an excellent primer on the development and application of space-related military capabilities.
Eccentric Orbits: The Iridium Story

DESCRIPTION

In the early 1990s, Motorola, the legendary American technology company developed a revolutionary satellite system called Iridium that promised to be its crowning achievement. Light years ahead of anything previously put into space, and built on technology developed for Ronald Reagan’s “Star Wars,” Iridium’s constellation of 66 satellites in polar orbit meant that no matter where you were on Earth, at least one satellite was always overhead. Iridium was a mind-boggling technical accomplishment, surely the future of communication. The only problem was that Iridium the company was a commercial disaster. Only months after launching service, it was $11 billion in debt, burning through $100 million a month and crippled by baroque rate plans and agreements that forced calls through Moscow, Beijing, Fucino, Italy, and elsewhere. Bankruptcy was inevitable—the largest to that point in American history. And when no real buyers seemed to materialize, it looked like Iridium would go down as just a “science experiment.” That is, until Dan Colussy got a wild idea. Colussy, a former head of Pan-Am now retired and working on his golf game in Palm Beach, heard about Motorola’s plans to “de-orbit” the system and decided he would buy Iridium and somehow turn around one of the biggest blunders in the history of business.

--Publisher

SIGNIFICANCE TO THE SPACE PRO COMMUNITY

Military leaders and on-the-ground operators have proven the effectiveness of the Iridium system, and the Department of Defense played no small role in the constellation’s preservation. Not only is Eccentric Orbits a deep dive into the technical accomplishments of the Iridium system, but an example of leadership in the face of near-certain failure.
First Man: The Life of Neil A. Armstrong

DESCRIPTION

First Man by James Hansen offers the only authorized glimpse into the life of America’s most famous astronaut, Neil Armstrong - the man whose “one small step” changed history. In First Man, Hansen explores the life of Neil Armstrong. Based on over 50 hours of interviews with the intensely private Armstrong, who also gave Hansen exclusive access to private documents and family sources, this “magnificent panorama of the second half of the American twentieth century” (Publishers Weekly, Starred Review) is an unparalleled biography of an American icon. This book reveals the man behind the myth. In a penetrating exploration of American hero worship, Hansen addresses the complex legacy of the First Man, as an astronaut and as an individual. In First Man, the personal, technological, epic, and iconic blend to form the portrait of a great but reluctant hero who will forever be known as history’s most famous space traveler.

--Amazon

SIGNIFICANCE TO THE SPACE PRO COMMUNITY

Sir Winston Churchill, Britain’s iconic WWII leader said, “To each there comes in their lifetime a special moment when they are figuratively tapped on the shoulder and offered the chance to do a very special thing, unique to them and fitted to their talents. What a tragedy if that moment finds them unprepared or unqualified for that which could have been their finest hour.” Born in rural Ohio when air travel was rare and space flight was fantasy, Neil Armstrong, from his earliest days, nonetheless began to prepare himself, physically, mentally, and spiritually for the time fate would tap him on the shoulder, and when it did he was ready to take a giant leap for mankind. Armstrong’s example inspires today’s space professional to prepare for perhaps still unimaginable opportunities and challenges. For that reason, First Man should be mandatory reading for every space professional.

By James R. Hansen
**FUTURE WAR: PREPARING FOR THE NEW GLOBAL BATTLEFIELD**

**DESCRIPTION**

*Future War* is almost here: battles fought in cyberspace; biologically enhanced soldiers; autonomous systems that can process information and strike violently before a human being can blink. In *Future War*, Latiff maps out the changing ways of war and the weapons technologies we will use to fight them, seeking to describe the ramifications of those changes and what it will mean in the future to be a soldier. He also recognizes that the fortunes of a nation are inextricably linked with its national defense, and how its citizens understand the importance of when, how, and according to what rules we fight. What will war mean to the average American? Are our leaders sufficiently sensitized to the implications of the new ways of fighting? How are the attitudes of individuals and civilian institutions shaped by the wars we fight and the means we use to fight them? And, of key importance: How will soldiers themselves think about war and their roles within it?

--Amazon

**SIGNIFICANCE TO THE SPACE PRO COMMUNITY**

Dr. (Gen) Latiff challenges today’s military space professional to think about future war. The nature of the future battlefield and warrior, he contends, will make war more brutal than ever. Latiff believes education, understanding, and expertise on military matters and science must be shared by all segments of society as a bulwark against the relentless tide of technological advancement. This is a quick and stimulating read, and its focus on ethics makes it an important part of the growing literature related to managing the continuing acceleration of technological development.
Threats to international peace and security include the proliferation of weapons of mass destructions, rogue nations, and international terrorism. The United States must respond to these challenges to its national security and to world stability by embracing new military technologies such as drones, autonomous robots, and cyber weapons. These weapons can provide more precise, less destructive means to coerce opponents to stop WMD proliferation, clamp down on terrorism, or end humanitarian disasters. Efforts to constrain new military technologies are not only doomed, but dangerous. Most weapons in themselves are not good or evil; their morality turns on the motives and purposes for the war itself. These new weapons can send a strong message without causing death or severe personal injury, and as a result can make war less, rather than more, destructive.

Amazon

The authors challenge the military space professional to consider assertions that new weapons and revolutionary technologies—cyber, robots, and space weapons—cannot be constrained, but are possibly better coercive tools and make war less destructive. If so, what are the implications for future warfare and global stability? This book will challenge the military space professional to ask “what if” and think about the unintended consequences of fielding an entirely new slate of weapons.
REPORT:
PLA AEROSPACE POWER

DESCRIPTION

The Chinese People’s Liberation Army (PLA) continues to develop rapidly across all aspects—hardware, technology, personnel, organization, etc. The PLA’s aerospace forces are, in many ways, leading that change. These include the PLA Air Force (PLAAF), PLA Rocket Force (PLARF), Naval Aviation, and space and cyber assets affiliated with the PLA Strategic Support Force (PLASSF). This inaugural volume from the China Aerospace Studies Institute (CASI), seeks to provide a brief primer on the trends affecting these forces and provide basic information about their composition and role today. This publication outlines the roles and missions of China’s aerospace forces, the PLA Air Force and its five branches, the PLA Rocket Force, and the PLA Strategic Support Force. It also identifies trends in PLA aerospace training and operational proficiency for these forces, and discusses the near-term outlook. There is a plethora of information, which evolves on an almost constant basis, available to leaders and policymakers on the hardware and technical aspects of these forces. As such, that is not the focus of this publication. Rather, this work is intended to serve as foundational work, capturing a snapshot of capabilities, and an outline of organizations, while identifying trends underway at the time of its writing, late 2016 to summer 2017.

--Publisher

SIGNIFICANCE TO THE SPACE PRO COMMUNITY

China continues to be one of America’s near-peer competitors. Its economy threatens to outpace America’s in the next several years, giving the PLA the capital to develop and field even more advanced space hardware, hardware that will likely threaten our own. It is imperative today’s military space professional understand the space threat China poses, and PLA Aerospace Power provides that foundational understand.

By Brendan Mulvaney
This thesis provides a theoretical foundation for space warfare, develops a space theory based on irregular warfare principles, and applies the theory towards a US space strategy. Space warfare is a subset to general war theory because space actions are merely political extensions and can be violent. An irregular space warfare theory’s primary purpose is to ensure survivable space-derived services. The proposed theory revolves around complicating an adversary’s targeting calculus by creating an identification challenge. Robust user equipment, hosted payloads, and covert small satellites are some of the means to assist in the task.

SIGNIFICANCE TO THE SPACE PRO COMMUNITY

Ultimately, the United States is in a prime position to employ an irregular space strategy because of its international leadership role, the number of its allies and partners, and its existing orbital architectures. This thesis delivers a strategy for US strategists contemplating how to deter, deny, and defeat adversary attacks against US and allied space systems.