

## ARTIFICIAL INTELLIGENCE AND UNMANNED SYSTEMS

### 2019 - The Year in Review

Approaching to the end of the year 2019, the speed of technological change keeps increasing more than our ability to adapt with such change.

Current state of Artificial Intelligence enables a machine to produce fake videos or news, create songs with lyrics and melodies, create content and write articles, help diagnose breast cancer and many many others. Driverless cars, air taxis, war robots, smart cities, personal assistants all fueled with artificial intelligence and data is the new oil.

Every day, new critical questions are asked and discussions from different perspectives are going on.

- What should be the best curriculum for STEM education that will prepare a competent workforce in the era of AI?
- How will the future of war look like?
- Is China going to be the new leader by 2030 and how will it change, the global economic center of gravity?
- Is AI a threat to humanity?
- How are we going to fight against the the non-state actors and terrorist organizations using commercially available technology to build their own weapons?
- What actually are the right talents for engineers working on your specific product's computer vision algorithms?
- To what extent the Quality, SW test, Project Management or Human Resources employees should know about these emerging technologies?
- How is the art of management being affected when managing tech-geeks?
- What are the priorities for the modernization of an army for the next generation war in budget, schedule and technology constraints?

This is not an article that can give answers to all these questions but continuous efforts in reading, thinking, reasoning from different scientific perspectives (work/labor, sociology, technology management,, economy, etc.) may eventually yield required intellectual capacity to adapt to this fast-forward change in life.

So here is a simple start...Not all but some professionals, usually other than those academics or engineers working for developing or applying technology as a profession, terms like "artificial intelligence", "big data", "machine learning", "unmanned systems" or similar others are not well understood yet. But, executive and managerial level understanding of emerging technologies are vital for every business since such technologies started transforming the way we live and work.

From a narrow but high technology, defense industry focus and keeping in mind some questions I have been asked or faced on many occasions, I have compiled a downloadable reading list, mostly related to

defense and military technologies, unmanned systems, drones, AI and similar topics. The list is of generic interest for defense industry but more than half of the documents are closely related to a wider interest group such as **HIGH TECHNOLOGY**.

Although all those listed below is a selected subset of what we read in a year, considering one can not read all listed publications or books, I have shortlisted some and marked them as “**MUST READ**”. Good reading:)

### **What we read in 2019 — with all downloadable links**

#### **January**

[Technology trends in Artificial Intelligence](#)

[Artificial Intelligence: A Modern Approach](#)

[An Analysis of Current and Future Technology for Unmanned Maritime Vehicles](#)

[2019 Technology Trends Report \(MUST READ\)](#)

[Advancing Autonomous Systems](#)

#### **February**

[Tech Trends 2019](#)

[Emerging Technologies and National Security: Russia, NATO, & the European Theater](#)

#### **March**

[National Cybersecurity Strategies in comparison](#)

[Technology Forecast 2019 to 2040](#)

#### **April**

[AI in China — Recent History, Strengths and Weaknesses of the Ecosystem](#)

[A Definition of AI: Main Capabilities and Disciplines \(MUST READ\)](#)

[Leveraging the National Technology Industrial Base to Address Great Power Competition](#)

#### **May**

[State of AI: Artificial intelligence, the military and increasingly autonomous weapons](#)

[MIT Defense Innovation Report](#)

#### **June**

[Study Report on Disruptive Technologies](#)

[Implications of AI and Machine Learning for Cybersecurity](#)

[The national Artificial Intelligence R&D Strategic Plan — 2019 Update](#)

#### **July**

[Potential Game Changers through 2035 \(MUST READ\)](#)

[China's New 2019 Defense White Paper](#)

**August**

[Exposing GPS Spoofing in Russia and Syria](#)

[Evaluating Global Exposure to China's Defense-Industrial Base](#)

**September**

[Robots that can kill](#)

[A Guide To Military Unmanned Systems On Air, Land And Sea](#)

[The Artificial Intelligence Arms Race: Trends and World Leaders in Autonomous Weapons Development](#)

[Cybersecurity: A State-of-The-Art-Review \(MUST READ\)](#)

[Future of Defense](#)

[The Global Expansion of AI Surveillance](#)

[The Drone Data Book \(MUST READ\)](#)

**October**

[How to Cut Through the Artificial Intelligence Hype — Three Simple “Rules of Thumb”](#)

[AI and Irregular Warfare](#)

[Military Deception: Artificial Intelligence's Killer Apps](#)

[Top 10 Strategic Technology Trends for 2020](#)

[Next-Generation Wargaming for the U.S. Marine Corps: Recommended Courses of Action](#)

[2020 Index of U.S. Military Strength](#)

[Defense Primer: Emerging Technologies](#)

[TNO early Research Program 2020](#)

**November**

[The U.S. Army Training and Doctrine Command \(TRADOC\) defines New Skills Required to Compete & Win in the Future Operational Environment \(Changing Character of Warfare\) & separate link — \[Takeaways for the future Artificial Intelligence battlefield\]\(#\) and separate link — \[the US Army in multi-domain operations 2028\]\(#\)](#)

[AI in military drones and UAVs — Current Applications](#)

[The arms industry and increasingly autonomous weapons \(MUST READ\)](#)

[Forces Command Plan 2020 to 2028](#)

[Mapping More of China's Technology Giants: AI and Surveillance \(MUST READ\)](#)

[Armed Drones in Europe](#)

[Industry Top Trends 2020: Aerospace and Defense](#)

[Artificial Intelligence and National Security](#)

[Artificial Intelligence Commission Interim Report \(MUST READ\)](#)

[Israel's Drone Wars](#)

## **December**

[China's Technology Giants such as Baidu, Alibaba, Tencent, Megvii, Dahua, et al.](#)

[China's Defense Universities and Labs focused in Artificial Intelligence](#)

[The SIPRI Top 100 arms-producing and military services companies](#)

[Army Fires Capabilities for 2025 and Beyond](#)

[Artificial Intelligence Index — 2019 Annual Report \(MUST READ\)](#)

[Government AI Readiness Report](#)

## **Recommended Books for You**

["Singularity is Near" by "Ray Kurzweil" \(2005\)](#)

["The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World" by "Pedro Domingos" \(2015\)](#)

["The Inevitable: Understanding the 12 Technological Forces That Will Shape Our Future" by "Kevin Kelly" \(2016\)](#)

["Machine, Platform, Crowd: Harnessing Our Digital Future" by "A. McAfee & E. Brynjolfsson" \(2017\)](#)

["The Fourth Age: Smart Robots, Conscious Computers, and the Future of Humanity" by "Byron Reese" \(2018\)](#)

["Army of None: Autonomous Weapons and the Future of War" by "Paul Scharre" \(2018\)](#)

["AI Superpowers: China, Silicon Valley, and the New World Order" by "Kai-Fu Lee" \(2018\) \(MUST READ\)](#)

["Possible Minds: Twenty-Five Ways of Looking at AI" by "John Brockman" \(2019\) \(MUST READ\)](#)

["The Big Nine: How the Tech Titans and Their Thinking Machines Could Warp Humanity" by "Amy Webb" \(2019\) \(MUST READ\)](#)

## **Recommended Novels for Junior Tech-Enthusiasts**

["The Unicorn Project: A Novel about Developers, Digital Disruption, and Thriving in the Age of Data" by "Gene Kim" \(2019\)](#)

["Danielle: Chronicles of a Superheroine" by "Ray Kurzweil" \(2019\)](#)

Recommended — Others



Search Tool for AI Academic Papers: <http://arxiv.aiindex.org/search>

Search Tool for Academic Papers: <https://www.aminer.cn/>

Free basic level Course on AI: <https://www.elementsofai.com/>