

Col. Mark D. Jacobsen

PROFESSOR · ENTREPRENEUR · WRITER

Montgomery, AL

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Summary

I am an Active Duty U.S. Air Force professor, entrepreneur, and writer who seeks to inspire and educate the builders of the future. I thrive at the intersection of scholarship and operational practice, and have leveraged my deep experience in both technology and social science to found multiple organizations aimed at developing novel airpower and cyberpower concepts. These include a nonprofit that sought to break sieges and fight starvation in Syria, as well as a cyber exploitation team at the Defense Innovation Unit aimed at stopping the use of drones for terrorism. In my teaching I bring together academic scholarship, forward-looking fiction, and a passion for leadership to prepare holistic, transformational leaders. I have two active research agendas: innovation leadership and strategy in complex, multi-actor wars. Holds TS/SCI.

Education

Stanford University

PHD IN POLITICAL SCIENCE

Stanford, CA

2014-2017

- Dissertation: "The Scramble for Political Order: State Breakdown and Armed Group Proliferation in Civil War"
- Advisor: Jim Fearon. Committee: Martha Crenshaw, Barry Weingast, Jeremy Weinstein.

USAF School of Advanced Air & Space Studies (SAASS)

M.PHIL. IN STRATEGY

Maxwell AFB, AL

2013-2014

- Thesis: "Strategy in Fragmented Wars: Iraq, Syria, and the Challenge of Intervention"
- #1/44 graduates

The University of Jordan

M.A. IN CONFLICT RESOLUTION

Amman, Jordan

2009-2011

- Completed MA in Jordanian university, as sole American in most of my classes.
- Coursework was primarily in English, but included several courses entirely in Arabic.
- Completed thesis on competing narratives about Islam in the United States.

Defense Language Institute

ARABIC BASIC COURSE

Monterey, CA

2008-2009

- Departure prior to course completion due to in-country language study opportunities.

Troy State University

M.A. IN INTERNATIONAL RELATIONS

Troy, AL

2005-2009

United States Air Force Academy

B.S. IN ASTRONAUTICAL ENGINEERING

Colorado Springs, CO

1998 - 2002

- Program Manager for Department of Astronautical Engineering rocket design program.
- Designed and flight-tested flight control computer for USAFA rockets.
- For my senior project, developed algorithm for detecting position on Mars using only the sun.
- Interned at NASA Jet Propulsion Laboratory

Work Experience

Air Force Center for Strategy and Technology

DEPUTY DIRECTOR OF BLUE HORIZONS

Maxwell AFB, AL

2023-Present

- Helps direct academic program to prepare battle-ready entrepreneurs to U.S. Air Force
- Teaching faculty member and advisor for student-led prototype projects
- Executes \$3.5M per year across student-led tech projects, partnering with industry
- Prototyped CV-enabled maritime search drone using OpenCV/Unreal Engine/PyTorch
- Oversees Master's degree program in Airpower Strategy and Technology Integration
- Reports to USAF Chief of Staff as his "think-and-do tank" at Air University

The Atlantic Council, Forward Defense

Washington, D.C.

NONRESIDENT FELLOW

2023-Present

- Generates ideas and connects stakeholders in the defense ecosystem to promote an enduring military advantage for the United States, its allies, and partners.
- Writes and advises on Atlantic Council projects pertaining to defense technology and the future of war.

Air War College

Maxwell AFB, AL

ASSISTANT PROFESSOR OF STRATEGY AND SECURITY STUDIES

2022-2023

- Assisted with curriculum overhaul for JCS-directed shift to Great Power Studies
- Facilitated first-ever AWC wargame focused on South China Sea military confrontation
- Helped teach Air University-wide Innovation Research Task Force
- Planned faculty development trip to Japan and South Korea with focus on U.S.-China competition in region

The School of Advanced Air and Space Studies (SAASS)

Maxwell AFB, AL

ASSISTANT PROFESSOR OF STRATEGY AND SECURITY STUDIES

2017-2022

- Winner of 2021 AETC Educator of the Year award
- Course Director for SAASS Technology and Innovation course; revamped course
- Instructor for Irregular Warfare course
- Published book and 50+ articles/blog posts with emphasis on leadership and mental health
- Revamped SAASS alumni program for 550+ grads, established e-books buying program, and led classroom modernization effort for hybrid classes
- Led data science initiative to study and improve discourse on two listservs with 300+ national security experts

Defense Innovation Unit: Rogue Squadron

Mountain View, CA

FOUNDER AND DIRECTOR

2017-2020

- Founded and led a 16-person, \$3M/yr agile software development team in the Department of Defense
- Led DevOps transformation of DoD counter-UAS capabilities with AWS GovCloud, GitLab, GitLab CI/CD, Docker, mobile apps
- Personally developed seven app prototypes, then built team to scale them into production
- Helped lead U.S. interagency policy efforts to prevent Chinese monopolization of sUAS industry & enable effective C-UAS response.
- Shaped efforts to revitalize U.S. sUAS industry, including investments in sUAS components, new Army quadcopter program, and initiation of Defense Production Act Title III protection for industry—signed into law
- Provided UAS/C-UAS capability to more than 200 organizations across DoD, other federal agencies, and allied nations
- Built cloud-based C-UAS detection network across multiple countries, providing richest sUAS detection data in DoD
- Led team to successful acquisition by the Defense Digital Service (DDS), a digital transformation team reporting to the Secretary of Defense

Uplift Aeronautics

Palo Alto, CA

FOUNDER AND EXECUTIVE DIRECTOR

2014-2015

- Founded and led 501(c)(3) nonprofit corporation aimed at using drones to end sieges in conflict zones
- Created and led open-source, global team of volunteers
- Developed small, fixed-wing drones capable of covert airdrops at 130km round-trip ranges
- Ran successful Indiegogo crowdfunding campaign and global media campaign
- Drove discussions in UN/aid sector on humanitarian drone use in conflict zones
- Developed “responsible use” drone firmware for safe, secure operations in conflict zones

Defense Entrepreneurs Forum

Chicago, IL

DIRECTOR OF STRATEGIC COMMUNICATION & FOUNDING BOARD MEMBER

2013

- Helped create new grassroots organization for promoting innovation culture within DoD
- Helped plan inaugural Defense Entrepreneurs Forum annual conference
- Developed communications plan and coauthored pre and post-conference articles

21st Airlift Squadron (60th Air Mobility Wing)

Travis AFB, CA

ASSISTANT DIRECTOR OF OPERATIONS, SQUADRON CHIEF OF STAFF, C-17 INSTRUCTOR PILOT

2011-2013

- Managed staffing, evaluations, and promotions for 150-person flying squadron
- Directed squadron operations for Secretary of Defense travel, hurricane response, and other missions

10th Airlift Squadron (62d Airlift Wing)

McChord AFB, WA

TRAINING MANAGER, EXECUTIVE OFFICER, WING FLIGHT SAFETY OFFICER, C-17 AIRCRAFT COMMANDER

2004-2008

- Flew missions in 20+ countries including aeromedical evacuation, humanitarian relief, presidential travel
- Flew 200+ missions in Afghanistan and Iraq
- Helped run base-level flight safety programs/mishap investigations

United States Air Force

Various

OFFICER

2002-Present

- Broad career including a variety of leadership, management, technical, and scholarly roles

Honors & Awards

SCHOLARSHIPS / FELLOWSHIPS

MILITARY

- 2021 **AETC Educator of the Year**, Air Education and Training Command
2012 **Field Grade Officer of the Quarter**, 60th Airlift Wing
2004 **Junior Company Grade Officer of the Year**, 62d Airlift Wing

Maxwell AFB, AL
Travis AFB, CA
McChord AFB, WA

ENTREPRENEURSHIP

- 2014 **1st Place**, Defense Entrepreneurs Forum Innovation Competition

Boston, MA

Scholarship

BOOKS

Eating Glass: The Inner Journey Through Failure and Renewal

CONTINUAL ASCENT

2021

PEER-REVIEWED PUBLICATIONS

The Promise of Drones

HARVARD INTERNATIONAL REVIEW

2016

BOOK REVIEWS

The Uses and Limits of Speculative Fiction: Three Novels about a US-China War

JOURNAL OF INDO-PACIFIC AFFAIRS

2023

Review: The Rise and Fall of Imperial China by Yuhua Wang

JOURNAL OF INDO-PACIFIC AFFAIRS

2023

POLICY PAPERS

Memorandum of Justification for Defense Production Act Protection of Small Unmanned Aerial Systems

FOR: NATIONAL SECURITY COUNCIL

2019

This white paper went to the White House as part of a DPA Title III package, which was signed by President Trump to authorize DPA protection of the small unmanned aerial system industry.

Growing an Alternative to DJI

FOR: DEPARTMENT OF DEFENSE, ACQUISITIONS & SUSTAINMENT

2019

This white paper launched a multi-year effort at the Defense Innovation Unit to provide DoD funding to the embattled small unmanned aerial systems industry and break the emerging monopoly by DJI, a Chinese company.

National Security Innovation Capital: Drone Technology Investment Areas

FOR: NATIONAL SECURITY INNOVATION CAPITAL (NSIC)

2018

This white paper outlined investment opportunities for the new National Security Innovation Capital (NSIC) fund to invest in U.S.-based drone technology and help break Chinese monopolization.

WORKING PAPERS

Transactional Cooperation in Civil Wars

PRESENTED AT INTERNATIONAL STUDIES ASSOCIATION ANNUAL CONFERENCE

2018

San Francisco, CA

The Role of Conventional Deterrence in Civil Wars

2018

OTHER ARTICLES

Ukraine's drone strikes are a window into the future of warfare

NEW ATLANTICIST

2023

The Dubious Prospects for Cargo-Delivery Drones in Ukraine

WAR ON THE ROCKS

2022

When You Lose Your Why

FROM THE GREEN NOTEBOOK

2021

Strategic Implications of Non-State #WarBots

THE STRATEGY BRIDGE

2017

Why the Flying IED Threat Has Barely Started

WAR ON THE ROCKS

2016

#Monday Musings

THE STRATEGY BRIDGE

2016

How the Syria Airlift Project is Using Open Source Dronecode for Humanitarian Aid

LINUX.COM

2015

The Syria Airlift Project

US NAVAL INSTITUTE PROCEEDINGS

2015

How to Discover Defense Innovation

WAR ON THE ROCKS

2014

Why the Defense Entrepreneurs Forum Matters: Peripheral Networks & Innovation

WAR ON THE ROCKS

2014

Constructive Disruption: The Defense Entrepreneurs Forum

SMALL WARS JOURNAL

2013

Finding Common Ground: Harnessing Disruption for the Good of the Service

SMALL WARS JOURNAL

2013

How to Teach About Islam

ARMED FORCES JOURNAL

2011

Some side benefits of learning both a foreign language and a foreign culture

FOREIGN POLICY: THE BEST DEFENSE

2010

Teaching Experience

COURSE DIRECTOR

Technology and Military Innovation

SCHOOL OF ADVANCED AIR & SPACE STUDIES

2018-2022

COURSE INSTRUCTOR

Taiwan Deterrence Task Force

AIR UNIVERSITY

2023

Innovation Research Task Force

AIR UNIVERSITY

2022

Great Power Studies

AIR WAR COLLEGE

2022

Introduction to Strategic Studies

AIR WAR COLLEGE

2022

Technology and Military Innovation

SCHOOL OF ADVANCED AIR & SPACE STUDIES

2017, 2023

Irregular Warfare

SCHOOL OF ADVANCED AIR & SPACE STUDIES

2021-2022

Strategy to Practice

SCHOOL OF ADVANCED AIR & SPACE STUDIES

2019

TEACHING ASSISTANT

International Security in a Changing World (with Amy Zegart)

STANFORD UNIVERSITY

2017

War and Peace in American Foreign Policy (with Kenneth Schultz)

STANFORD UNIVERSITY

2016

International Security in a Changing World (with Scott Sagan and Gil-li Vardi)

STANFORD UNIVERSITY

2016

Simulations and Wargames

Assassin's Mace (South China Sea Military Confrontation)

AIR WAR COLLEGE

2022

Diplomatic Simulation of South China Sea Confrontation (with Amy Zegart)

STANFORD UNIVERSITY

2017

Diplomatic Simulation of Nuclear Nonproliferation Treaty Renegotiation (with Scott Sagan and Gil-li Vardi)

STANFORD UNIVERSITY

2016

Presentations and Talks

PRESENTATIONS

The Evolution of Defense Innovation

DIRECTOR'S DEVELOPMENT PROGRAM IN LEADERSHIP

Maxwell AFB, AL

2022

Innovation and the F-Word (Failure)

DEFENSE ENTREPRENEURS FORUM ANNUAL CONFERENCE

Virtual

2021

Drone Startup Technology

CORNELL UNIVERSITY: THE POLITICS OF TECHNOLOGY, WITH SARAH KREPS

Virtual

2021

Keeping Pace with Drones Inside the U.S. Government

GLOBAL DRONE SECURITY NETWORK

Virtual

2021

Swarming Airlift Through Contested Airspace

AIRLIFT/TANKER ASSOCIATION

Nashville TN

2016

DIU Rogue Squadron

NORAD/NORTHCOM VISTA CONDOR II

Colorado Springs, CO

2019

Transactional Cooperation in Civil Wars

INTERNATIONAL STUDIES ASSOCIATION ANNUAL CONFERENCE

San Francisco, CA

2018

The Syria Airlift Project

HUMANITARIAN TECHNOLOGY CONFERENCE

Boston, MA

2016

Drones for Humanity

SAN JOSE MUSEUM OF ART

San Jose, CA

2015

The Syria Airlift Project

SAN FRANCISCO ROBOTICS APPLICATION GROUP

San Francisco, CA

2015

Open-Sourcing Humanitarian Airlift

NAVAL POSTGRADUATE SCHOOL CONSORTIUM FOR ROBOTICS AND UNMANNED SYSTEMS EDUCATION AND RESEARCH (CRUSER)

Monterey, CA

2015

Open-Sourcing Humanitarian Airlift

EMBEDDED LINUX/DRONECODE CONFERENCE

San Jose, CA

2015

The Israeli-Palestinian Conflict

THE AIRLIFT/TANKER ASSOCIATION

Anaheim, CA

2012

PODCASTS & MEDIA

Delivering Humanitarian Aid Using Drones

GOVERNMENT MATTERS TV

2022

Growth Through Failure

FROM THE GREEN NOTEBOOK

2022

Eating Glass with Mark Jacobsen

ALWAYS IN PURSUIT

2021

CFO Bookshelf

AN INNER JOURNEY THROUGH FAILURE AND RENEWAL

2021

Author Talk with Mark Jacobsen

MINIMUM VIABLE PODCAST

2021

Fiction Writing

I combine storytelling and scholarship by writing near-future science fiction. This provides a laboratory in which to explore the social and political implications of new technologies. I consider this an integral part of my broader scholarly contributions.

The Weight of Oceans

ASIMOV'S SCIENCE FICTION

forthcoming

The Repair

ASIMOV'S SCIENCE FICTION

2022

Destroyer of Worlds

INKSTICK MEDIA

2021

"Celestial Object 143205" in Derelict

ZOMBIES NEED BRAINS LLC

2021

Fitness Function

CENTER FOR INTERNATIONAL MARITIME SECURITY

2016

The Wasp Keepers

War Stories, APEX BOOK COMPANY

2014

The Lords of Harambee

AMAZON CREATESPACE

2012

Additional Projects

Cairn Leadership

MOUNTAIN GUIDE AND LEADERSHIP COACH

2022-Present

- Part-time guide for a company that provides executive leadership education and coaching in the outdoors
- Develops curriculum focused on core leadership competencies
- Leads safe, meaningful multi-day backpacking and rock climbing expeditions for clients of all experience levels

ArduPilot

VOLUNTEER DEVELOPER

2014-2015

- Volunteer for open-source drone autopilot software used by hundreds of companies
- Contributed code to improve ground control station interface
- Identified crucial flaws in safety failsafes and wrote technical writeup for developers
- Contributed improved documentation to enhance flight safety
- Consulted leadership team on transition to non-profit

PFPS Google Earth Tool

DEVELOPER

2007-2008

- Designed the first-ever software for integrating Google Earth with DoD flight planning tools.
- The US Air Force Academy Institute for Information Technology adopted my code, and evolved it into a \$1.5M AF program called WEdge Viewer, which remains in use today.

Skills

Languages: Modern Standard and Levantine Arabic - basic working proficiency (DLPT 3/3)

Technologies: R, Python, Kotlin, Java, Android, Typescript, AWS, git, GitLab CI/CD, Docker, LaTeX, Jupyter, Shiny, RMarkdown/knitr