Dylan M. Asmar

DylanAsmar.com

Summary

Stanford Ph.D. candidate, published researcher, and F-22 pilot with a unique blend of operational expertise and advanced research in AI, robotics, and decision-making systems. Experienced in bridging theoretical frameworks with real-world applications, delivering solutions for multiagent coordination and system optimization. Passionate about integrating human expertise with AI for robust and practical outcomes.

Professional Experience

Hugh H. Skilling Stanford Graduate Fellow/Ph.D. Candidate Sep 2021 – Present

Stanford Intelligent Systems Laboratory, Stanford University *Stanford, CA*

- Led advanced research on decision making under uncertainty, with a focus on integrating human expertise and artificial intelligence systems.
- Mentored a diverse group of undergraduate and master's students, fostering their academic growth and research competencies through collaborative projects.
- Led teaching teams for graduate courses in Decision Making Under Uncertainty (400+ students) and Engineering Design Optimization (140+ students).
- Published research in top-tier venues including NeurIPS and ICRA, advancing state-of-the-art methods in collaborative decision-making and optimal control.
- Led a dynamic and diverse overseas seminar in India, guiding a group of 20 undergraduate students, blending cultural immersion with technical exploration in engineering and technology.

F-22 Operational Test and Evaluation Pilot Sep 2018 – Present

232nd CTS, Nevada Air National Guard/59th TES United States Air Force/422nd TES, United States Air Force *Nellis AFB, NV*

- Led a data science team to modernize the use of data analytics within operational test and guided infrastructure development in support of data initiatives in alignment with the DoD Data Strategy.
- Developed software tool for automated dogfight analysis, reducing pilot review time and eliminating human bias in flight reconstruction.
- Orchestrated first-ever F-22/F-35 flight data integration project, enabling rapid software validation.
- Developed an innovative method to improve the F-22 flight software and enhance its defensive capabilities.
- Led operations analysis teams by integrating tactical knowledge with engineering analysis, ensuring accuracy and relevance of evaluations in the advancement of aircraft tactics and capabilities.

F-22 Pilot/Mission Commander Nov 2015 – Sep 2018

95th Fighter Squadron, United States Air Force *Tyndall AFB, FL*

- Led the planning, employment, and integration of air assets in complex multi-service/multinational training and combat missions.
- Coordinated multiple efforts including orchestrating 77 combat sorties in Operation Inherent Resolve (OIR) and leading the first ever F-22 and CV-22 integration.

Officer/Student Pilot May 2011 – Nov 2015

United States Air Force *Sheppard AFB, TX and Tyndall AFB, FL*

- Completed the F-22 initial qualification course—an advanced course designed to produce near-mission ready F-22 pilots—with a 99% academic record and earned the "Top Gun" award for tactical employment.
- Attended Euro-NATO Joint Jet Pilot Training (ENJJPT) involving 350 hours of academic training, 112 hours of simulator training, and 202 hours of flight training while maintaining a 100% academic record and receiving the Academic Excellence Award.

Research Assistant Aug 2011 – May 2013

Group 42 Surveillance Systems, MIT Lincoln Laboratory *Lexington, MA*

- Researched novel methods to approach airborne collision avoidance using existing hardware in aircraft.
- Extended the Airborne Collision Avoidance System X (ACAS X) program from two-aircraft encounters to coordination with multiple aircraft including interoperability with legacy systems.

EDUCATION

Stanford University, Ph.D. in Aeronautics and Astronautics — Aug 2025 (Exp.)
Areas of research: Decision making under uncertainty, human-AI collaboration, optimization

Massachusetts Institute of Technology, M.S. in Aeronautics and Astronautics — May 2013
Thesis: Airborne Collision Avoidance in Mixed Equipage Environments

United States Air Force Academy, B.S. in Mathematics and Astronautical Engineering — May 2011
Honors: Distinguished Graduate, Academic Distinction, Military Distinction, Academy Scholar

SELECT PUBLICATIONS

Efficient Multiagent Planning via Shared Action Suggestions
Dylan M. Asmar and Mykel J. Kochenderfer
Under Review, 2024

Large-Scale Multi-Robot Assembly Planning for Autonomous Manufacturing
Kyle Brown, **Dylan M. Asmar**, Mac Schwager, and Mykel J. Kochenderfer
Under Review, 2024

A Data-Based Architecture for Flight Test without Test Points
D. Isaiah Harp, Joshua Ott, John Alora, and **Dylan M. Asmar**
Society of Experimental Test Pilots Annual Symposium, 2024

Model Predictive Optimized Path Integral Strategies
Dylan M. Asmar, Ransalu Senanayake, Shawn Manuel, and Mykel J. Kochenderfer
IEEE International Conference on Robotics and Automation (ICRA), 2023

Collaborative Decision Making Using Action Suggestions
Dylan M. Asmar and Mykel J. Kochenderfer
Advances in Neural Information Processing Systems (NeurIPS), 2022

Vertical State Estimation for Aircraft Collision Avoidance with Quantized Measurements
Dylan M. Asmar, Mykel J. Kochenderfer, and James P. Chryssanthacopoulos
AIAA Journal of Guidance, Control, and Dynamics, 2013

AWARDS/RECOGNITIONS

- Hugh H. Skilling Stanford Graduate Fellowship, Stanford University (2021)
- United States Air Force Achievement Medal (2019)
- Top Graduate/Distinguished Graduate, USAF Squadron Officer School (2018)
- United States Air Force Air Medal (2018)
- Innovator of the Year, 95th Fighter Squadron (2017)
- Company Grade Officer of the Year, 95th Fighter Squadron (2017)
- Wingman of the Year, Air Combat Command (2016)
- Top Gun Award for Tactical Employment, F-22 Basic Qualification Course (2015)
- Academic Excellence Award, Euro-NATO Joint Jet Pilot Training (2014)
- Outstanding Cadet in Astronautical Engineering, United States Air Force Academy (2011)

TECHNICAL SKILLS

Programming (Proficient): Julia, Python, MATLAB, Mathematica, VBA

Programming (Familiar): SQL, R, C++

Tools/Frameworks: Git, LaTeX, POMDPs.jl, JuMP.jl, Gurobi, Pandas, scikit-learn, PyTorch, ROS

Methods: Decision making under uncertainty, optimization, reinforcement learning, machine learning, multiagent systems