

Kara M. Greene, PhD, PE

Senior Managing Consultant, Team Lead



Dr. Greene is a mechanical/aeronautical engineer, Senior Managing Consultant and Team Lead for Engineering Systems Inc. (ESi), where she specializes in aircraft accident reconstruction and analysis. Using radar, GPS, ADS-B, aircraft system information, atmospheric data, and geographical surroundings, Dr. Greene evaluates aircraft performance and creates a cohesive picture of an accident. She has analyzed dozens of airplane and helicopter accidents following the scientific and forensic engineering method beginning with data collection at the wreckage inspection; continuing analysis through testing; finalizing with report conclusions; and testifying at trial.

Dr. Greene joined ESi upon retiring from the U.S. Air Force following a 22-year career, with positions including Wing Plans & Programs at Al Udeid AB, Qatar, and Assistant Professor and Director of the Aeronautic Laboratory at the Air Force Academy. During her service in the Air Force, Dr. Greene was an evaluator and instructor pilot in the C-17A (Boeing Globemaster), an instructor in the T-53 (Diamond DA-40), T-52 (Cirrus SR-20), and T-41 (Cessna 172), and a pilot in the T-37 (Cessna Tweet) and T-1 (Beech Jayhawk) with a total of over 3,500 hours, including combat and Night Vision Goggle (NVG) time. Currently, she has a commercial and instrument pilot FAA rating for single-engine and multi-engine aircraft.

Dr. Greene has a PhD in aerospace engineering focusing on unmanned aircraft flying qualities, for which she modeled a standard for unmanned aircraft after the current helicopter standard. She has experience in wind tunnel testing and analysis, simulator and aerodynamic model building, and aircraft performance. At the Air Force Academy, she taught courses in aeronautics, experimental methods, mathematics, and flight test techniques including data acquisition in the T-41.

Education

PhD, Aeronautical Engineering, AF Institute of Technology, 2017
MA, Counseling and Leadership, University of Colorado, 2010
MS, Mechanical Engineering, University of Idaho, 2008
BS, Mechanical Engineering, University of Notre Dame, 1998

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ESi Colorado Springs

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Areas of Specialization

- Airplane & Helicopter Performance
- Airplane & Helicopter Accident Reconstruction
- Simulations/Animations
- Radar, GPS & ADS-B Analysis
- Aircraft Stability & Control
- Aviation Operations
- Aerodynamics
- Piloting Expertise
- Unmanned Aircraft Systems (UAS) (Development & Operations)

Licenses & Certifications

- State of Colorado P.E. License 62450
- FAA Commercial Single-Engine and Multi-Engine Pilot with Instrument Rating

Positions Held

Engineering Systems Inc., Colorado Springs, Colorado

- Senior Managing Consultant & Team Lead, 2026-Present
- Senior Consultant & Team Lead, 2025–2026
- Senior Consultant, 2024–2025
- Senior Staff Consultant, 2021–2024

USAF Academy, Colorado Springs, Colorado

- Director, Aeronautics Laboratory, Assistant Professor, Instructor Pilot, 2017–2020

379th Air Expeditionary Wing, Al Udeid AB, Qatar

- Chief, Wing Plans & Programs and Command Post, 2016–2017

USAF Academy, Colorado Springs, Colorado

- Director of Operations/Assistant Professor of Aeronautics, 2015–2016
- Engineering Division Executive Officer/Instructor of Aeronautics, 2010–2012

Altus Air Force Base, Oklahoma

- Assistant Director Operations, Standardization/Evaluation Assistant Flight Commander, Tactics Flight Commander & C-17 Flight Training Unit Evaluator Pilot, 2005–2009

McChord Air Force Base, Washington

- Assistant Readiness Flight Commander, Chief of Training, Wing Airland Planner, Executive Officer & C-17 Instructor Aircraft Commander, 2001–2005

Laughlin Air Force Base, Texas

- T-37 & T-1 Student Pilot, 1999–2001

University of Notre Dame, Notre Dame, Indiana

- Assistant to the Commander, Detachment 225, 1998–1999

Continuing Education

- **Acoustic Signal Analysis, ACS 503** – Penn State University, 2024
- **Aircraft Propeller Accident Investigation Course** – Hartzell Propeller, 2024
- **Basic Rotorcraft Accident Investigation Course** – Transportation Safety Institute, 2023
- **Basic Aircraft Accident Investigation Course** – Transportation Safety Institute, 2021
- **Crash Reconstruction for the Engineer** – Northwestern University, 2022
- **Air War College** – United States Air Force (USAF), 2019
- **Civilian Personnel Management Course** – USAF, 2018
- **Air Command and Staff College** – USAF, 2008
- **Supervisor Safety Training** – USAF, 2015
- **Squadron Officer School** – USAF, 2002
- **Combat Air Tactics School** – USAF, 2006
- **Annual Boeing Crew Resource Management Training** – USAF, 2001-2009

Professional Affiliations/Honors

American Institute of Aeronautics and Astronautics

- Associate Fellow, 2025 – Present
- Senior Member, 2020 – 2025
- Member, 2010-2020
- AIAA Atmospheric Flight Mechanics Technical Committee, 2023 – Present
- AIAA Student Activities Committee, 2012 - 2014
- Green Engineering Program Committee, 2012 – 2013

US Helicopter Safety Team

- Member, 2025 – Present

International Aviation Women's Association

- Member, 2021 – Present
- Member, Mentor/Mentee Committee, 2023 – Present
- Workshop Conference Planning Committee, 2024 - Present

International Society of Air Safety Investigators

- Member, 2025 – Present

Women of Aeronautics and Astronautics

- Member, 2021 – Present

Academy District 20 Engineering & Drafting Design Advisory Board

- Member, 2023 – Present

Tau Beta Pi, Engineering Honor Society

- Member, 1998 – Present

Sigma Gamma Tau, Engineering Honor Society

- Member, 1998 – Present

Squadron Officer School

- Outstanding Contributor, 2002

Air Education and Training Command

- Distinguished Graduate, 2001
- Recipient, Commander's Trophy, 2001

Reserve Officer Training Corps

- Distinguished Graduate, 1998

U.S. Air Force ROTC

- Recipient, Paul Roberge Award, 1998
- Top Pilot Candidate Graduate, Det 225, 1998

Project Experience

Investigations

- Reconstructed the flight path of a single-engine Cirrus SR22 aircraft leading up to a fatal crash. Analyzed onboard JP Instruments Engine Data Monitor 900 data, Air Traffic Control data, and Air Surveillance Radar data. Combined the collected data used to create visual simulation of the accident. Utilized the combined data and the simulations to verify the cause of the fatal crash. Developed analysis and reports for the client, which led to the settlement of the case.
- Coordinated multiple aviation experts, pilots, and others to develop a comprehensive understanding of the events leading up to two fatal nighttime crashes of a Boeing AH-64E Apache attack helicopters.
- Project managed the development and creation of demonstrative visual simulations of flight controls, Pilot Night Vision System (PNVS), onboard data tracking systems, and pilot actions leading to the fatal nighttime crash of a Boeing AH-64E Apache attack helicopter.

- Reconstructed the flight and accident of an Agusta 109S that crashed in night instrument meteorological conditions. The reconstruction was based on ATC radar data, onboard Data Acquisition Unit information, and ground impact information. The reconstructed flight was animated to show both the pilot's view at night in the weather and a wingman view with ground reference points. The animation and engineering report enabled the client to properly settle the case.

Publications

"Accuracy of Flight Parameters Calculated from Radar and Automated Dependent Surveillance-Broadcast (ADS-B) Data," T.P. Jung , **K.M. Greene**, K.R. Thobe , M.K. Bauer , and A. Moen, AIAA Journal of Aircraft (accepted, publication pending in 2026).

"Accuracy of Flight Parameters Calculated from Radar and Automated Dependent Surveillance: Broadcast (ADS-B) Data," T.P. Jung, **K.M. Greene**, K. Thobe, M.K. Bauer, and A. Moen, AIAA, SciTech Forum, AIAA-2025-1623, 2025.

"Use of Specific Excess Power in Aviation Accident Analysis," T.P. Jung, S.L. Morris, J.H. Slane, R.C. Winn, S. Brandt, and **K.M. Greene**, AIAA SciTech Forum, January 2021.

"Toward a Flying Qualities Standard for Unmanned Aircraft," **K.M. Greene**, PhD Dissertation, Air Force Institute of Technology, 2017.

"Creating a Curriculum Based on Engineering Needs," **K.M. Greene**, D. Barlow, and T. Cunningham, International Network for Engineering Education and Research, INEER Innovation Series Special Volume 2012, Paper 12-039, July 2012.

Presentations

"GNSS in Accident Reconstruction and GNSS Interference," T.P. Jung and **K.M. Greene**, International Underwriters Association NextGen Aviation Conference, London, England, October 2024.

"Elbit Systems/Connolly Case: A Review of ESI's Contributions," T.P. Jung, **K.M. Greene**, and R.C. Winn, Generali Aviation Claims Seminar, London, England, January 2023.

"Techniques in Aircraft Accident Reconstruction: Past, Present, and Future," **K.M. Greene** and M.K. Bauer, ABA/TIPS Aviation & Space Law Seminar, Washington DC, November 2022.

"Unmanned Flying Qualities Criteria Comparison of Non-Precision Non-Aggressive and Precision Aggressive Maneuvers," **K.M. Greene**, Aerospace Control and Guidance Systems Committee (ACGSC) Meeting #116, Charlotte, NC, October 2015.

"Quickness Criteria for Large Unmanned Aircraft in Non-Precision, Aggressive and Non-Aggressive Maneuvers," **K.M. Greene** and D. Kunz, AIAA Atmospheric Flight Mechanics Conference, Dallas, TX, June 2015.

"Investigation of Large Unmanned Aircraft Non-Precision, Aggressive Quickness Criteria," **K.M. Greene**, SCI-269 Symposium on UAS Flight Testing, Ottawa, Canada, May 2015.

"Flying Qualities Criteria for Unmanned Aircraft," **K.M. Greene**, AIAA DCASS, Dayton, OH, March 2015.

"Toward a Flying Qualities Standard for Unmanned Aircraft," **K.M. Greene**, D. Kunz, and M. Cotting, AIAA Atmospheric Flight Mechanics Conference, Atlanta, GA, June 2014.

"Wind and Water Tunnel Measurements of Parachute Suspension Line," T. Siefers, **K.M. Greene**, T. McLaughlin, and K. Bergeron, AIAA Aerospace Sciences Meeting and New Horizons Forum & Aerospace Exposition, June 2013.

"Flying Qualities for Unmanned Aerial Vehicles," **K.M. Greene**, AIAA Dayton-Cincinnati Aerospace Science, 2014.