Emilio M. Botero

emilio@emiliobotero.com

EDUCATION

STANFORD UNIVERSITY Stanford, CA

- PH.D. in Aeronautics and Astronautics Expected 2019
- M.S. in Aeronautics and Astronautics June 2015

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY (ERAU) Prescott, AZ

- B.S. in Aerospace Engineering, Minor in Flight June 2013
    - Summa Cum Laude, Aeronautics Concentration

EXPERIENCE

SUAVE (suave.stanford.edu), Lead Developer and Forum Moderator June 2015-Present

- In charge of the software development of an open source conceptual design tool. Designed to allow for the analysis, design, and optimization of future conventional and unconventional aircraft of all types. A modular platform coded in Python allows the use of traditional as well as physics-based design methods.

NASA LEARN Stanford UAS Autonomous Test Bed January 2016-June 2017

- Stanford Lead for a modular UAS framework for customizable autonomy research. Primary tasks of organizing weekly meetings, performing design optimization, assisting in building and flight testing.

Terrafugia Woburn MA, Engineering Intern May 2011-August 2011, May 2012-August 2012

- Flying Car: built composite components and molds, designed electronic circuitry, designed aerodynamic fairings including airfoils, and analyzed flight test data for the Transition light sport roadable aircraft.

LEADERSHIP & ACTIVITIES

Women in Aeronautics and Astronautics (WIAA), Co-President January 2016 – Present

- Organizes events to promote equality, networking, and inclusive community in the Aero/Astro department

Stanford Graduate Life Office, EV and OCH Community Associate September 2016 – Present

- Fosters a sense of community within Stanford residences through outreach and events

Stanford Aviators, Founding member and current Vice President January 2014-Present

Case Studies in Aircraft Design (AA 294), Course Assistant Spring 2016 & 2017

Design, Construction, and Testing of Autonomous Aircraft (AA 241X) Mentor: Spring 2014, **Winner**: Spring 2015

AIAA Design/Build/Fly (DBF) ERAU, AIAA Chapter President 2010-2013

- Lead a team to compete in DBF for 3 years, annual budget of over $9k

ERAU Tutor for Solid Mechanics and Engineering Dynamics March 2011-January 2013

Stanford Aerospace Design Lab, Safety Coordinator September 2016-Present

FLIGHT EXPERIENCE

Commercial Pilot: Airplane Multiengine & Single Land: Instrument Airplane

215 Total Time: 73 Multi-Engine; 65 Cross-Country; 37 Night; 26 SIM IFR; 51 FTD

FAA Advanced Ground Instructor (AGI)

Expert radio control aircraft pilot and builder

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HONORS & AWARDS

Stanford VPGE DARE Fellow	2017
Stanford VPGE Edge Fellow	2016
National Defense Science & Engineering Graduate Fellowship (**NDSEG**), Recipient	2014
National Science Foundation Graduate Research Fellowship (**NSF GRFP**), Awardee	2014
Stanford School of Engineering Graduate Engineering Fellowship	2013
Sigma Gamma Tau Aerospace Engineering Honor Society, Initiated Member	2012
Tau Beta Pi (AZ Delta) Engineering Honor Society, Chapter Founding Member	2011
AIAA Dr. Amy R. Pritchett Digital Avionics Scholarship	2011

PUBLICATIONS

Conference Publications:

Botero, E., & Alonso, J. J. (2017). Conceptual Design and Optimization of Small Transitioning UAVs Using SUAVE. 18th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference

MacDonald, T., **Botero, E.,** Vegh, J. M., Variyar, A., Alonso, J. J., Orra, T. H., & Ilario da Silva, C. R. (2017). SUAVE: An Open-Source Environment Enabling Unconventional Vehicle Designs through Higher Fidelity. In 55th AIAA Aerospace Sciences Meeting

Wendorff, A., **Botero, E.,** & Alonso, J. J. (2016). Comparing Different Off-the-Shelf Optimizers' Performance in Conceptual Aircraft Design. In 17th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference (p. 3362).

Botero, E. M., Wendorff, A., MacDonald, T., Variyar, A., Vegh, J. M., Lukaczyk, T. W., ... & Ilario da Silva, C. (2016). SUAVE: An Open-Source Environment for Conceptual Vehicle Design and Optimization. In 54th AIAA Aerospace Sciences Meeting (p. 1275).

Lukaczyk, T. W., Wendorff, A. D., Colonno, M., Economon, T. D., **Botero, E...,** Alonso, J. J., Orra, T. H., & Ilario, C. (2015). SUAVE: An Open-Source Environment for Multi-Fidelity Conceptual Vehicle Design. In 16th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference (p. 3087).

Journal Publications:

Traub, L. W., **Botero, E.,** Waghela, R., Callahan, R., & Watson, A. (2015). Effect of Taper Ratio at Low Reynolds Number. Journal of Aircraft, 52(3), 734-747.

Traub, L. W., Waghela, R., & **Botero, E. M.** (2015). Effects of Surface Flow Visualisation on Aerodynamic Loads at Low Reynolds Number. The Aeronautical Journal, 119(1215), 663-672.

SKILLS

Software: Python, C/C++, Latex, Git, SU2, OpenVSP, AVL, XFOIL, CATIA V5, SolidWorks, ANSYS/Fluent
Manufacturing: Composite aircraft fabrication methods, bench tools, power tools, hand tools

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PROFESSIONAL SNOWBOARDER

Ranked 8th by FIS for US Parallel Snowboarding athletes to begin the 2019 Season
Ranked 84th in the World by FIS for Parallel Snowboarding athletes to begin the 2019 Season

Selected Results:

12th US National Championships Parallel Giant Slalom April 2018
1st Tom Sims Retro World Championships Open Class Race, Soda Springs California, March 2017
24th FIS World Cup Team Parallel Slalom, Winterberg Germany, March 2018
2nd USSA Race to the Cup Parallel Slalom, Steamboat Springs Colorado, December 2017
12th US National Championships Parallel Giant Slalom April 2017
1st Tom Sims Retro World Championships Open Class Race, Boreal California, March 2017
9th US National Championships Parallel Giant Slalom April 2016
8th US National Championships Parallel Slalom April 2015