Curriculum Vitae

Notarization. I have read the following and certify that this *curriculum vitae* is a current and accurate statement of my professional record.

Signature _____ Date _____

I. Personal Information

I.A. UID, Last Name, First Name, Middle Name, Contact Information

UID:

Saetti, Umberto

3182 Glenn L. Martin Hall
Department of Aerospace Engineering
University of Maryland, College Park, MD 20742

(301) 405-1133

saetti@umd.edu

UMD: `https://aero.umd.edu/clark/faculty/1709/Umberto-Saetti`
Google Scholar: `https://scholar.google.com/citations?user=FDZb_XoAAAAJ&hl=en`
Research Gate: `https://www.researchgate.net/profile/Umberto-Saetti`
Personal: `https://umbertosaetti.com/`

I.B. Academic Appointments

08/2022–Present	Assistant Professor Alfred Gessow Rotorcraft Center Department of Aerospace Engineering University of Maryland, College Park, MD
07/2021–08/2022	Assistant Professor Department of Aerospace Engineering Auburn University, Auburn, AL

08/2019–06/2021 Postdoctoral Fellow
Vertical Lift Research Center of Excellence
School of Aerospace Engineering
Georgia Institute of Technology, Atlanta, GA

01/2015–08/2019 Graduate Research Assistant
Vertical Lift Research Center of Excellence
Department of Aerospace Engineering
Pennsylvania State University, University Park, PA

I.C. Other Employment

12/2018–12/2018 Visiting Scholar
U.S. Army Aviation Development Directorate, NASA Ames, Moffett Field, CA
Identification of linear time-periodic systems from rotorcraft flight test data.

I.D. Educational Background

07/2014	B.S.	Politecnico di Milano Aerospace Engineering
08/2015	M.S.	Pennsylvania State University Aerospace Engineering
08/2017	M.S.	Pennsylvania State University Electrical Engineering
08/2019	Ph.D.	Pennsylvania State University Aerospace Engineering

I.E. Professional Certifications, Licenses, and Memberships

Member Vertical Flight Society (VFS)
Member American Institute of Aeronautics and Astronautics (AIAA)

II. Research, Scholarly and Creative Activities

II.A. Books

1. Saetti, U., Horn, J. F., and Berger, T., Rotorcraft Flight Dynamics and Control. Cambridge University Press, New York, NY. In preparation.

II.B. Refereed Journals

Italics indicate undergraduate advisee, **bold** indicates graduate advisee, and

underline indicates postdoctoral advisee.

i. Refereed Journal Articles

14. Saetti, U., **Bugday, B.**, Horn, J. F., and Brentner, K. S., Linearized Models of the Coupled Rotorcraft Flight Dynamics and Acoustics for Real-Time Noise Prediction, Vol. 69, No. 2, Apr 2024. doi: 10.4050/JAHS.69.022002

13. Saetti, U., and **Bugday, B.**, Tiltrotor Simulations with Coupled Flight Dynamics, State-Space Aeromechanics, and Acoustics. Journal of the American Helicopter Society, Vol. 69, No. 1, Jan 2024. doi: 10.4050/JAHS.69.012003

12. Saetti U., and Horn J. F., Implementation and Linearization of State-Space Free-Vortex Wake Models for Rotary- and Flapping-Wing Vehicles, Journal of the American Helicopter Society, Vol. 68, No. 4, Oct 2023. doi: 10.4050/JAHS.68.042004

11. Saetti U., and Horn J. F., Linear Time-Invariant Approximations of Nonlinear Time-Periodic Systems. Journal of the American Helicopter Society, Vol. 68, No. 1, Jan 2023. doi: 10.4050/JAHS.68.012006

10. Saetti U., and Rogers, J. D., Harmonic Decomposition Models of Flapping-Wing Flight for Stability Analysis and Control Design, Journal of Guidance, Control, and Dynamics, Vol. 48, No. 8, 2022. doi: 10.2514/1.G006447

9. Saetti U., Enciu, J., and Horn J.F., Flight Dynamics and Control of an eVTOL Concept Aircraft with a Propeller-Driven Rotor, Journal of the American Helicopter Society, Vol. 67, No. 3., pp. 153–166 2022. doi: 10.4050/JAHS.67.032012

8. Saetti U., Lovera M., Time-Periodic and High-Order Time-Invariant Linearized Models of Rotorcraft: A Survey, Journal of the American Helicopter Society, Vol. 67, No. 1, pp. 1–19, 2022. doi: 10.4050/JAHS.67.012008

7. Musso D., Saetti U., and Rogers J. D., Probabilistic Fatigue Damage Estimation for Rotorcraft Life-Limited Components. Journal of Aircraft, Vol. 59, No. 2, Sep 2021. doi: 10.2514/1.C036561

6. Saetti U., Rogers, J. D., Motion Primitive Approach to Rotorcraft Regime Recognition, Journal of the American Helicopter Society, Vol. 66, No. 4, Oct 2021. doi: 10.4050/JAHS.66.042006

5. Saetti U., Rogers, J. D., Revisited Harmonic Balance Trim Solution Method for Periodically-Forced Aerospace Vehicles, Journal of Guidance,

Control, and Dynamics, Vol. 44, No. 5, 2021. doi: 10.2514/1.G004406

4. Saetti U., Horn J. F., Berger T., and Tischler M. B., Handling-Qualities Perspective on Load Alleviation Control, Journal of Guidance, Control, and Dynamics, Vol. 43, No. 10, 2020, pp. 1792-1804. doi: 10.2514/1.G004965

3. Saetti U., and Horn J. F. Load Alleviation Flight Control Design Using High Order Dynamic Models, Journal of the American Helicopter Society, Vol. 65, No. 3, 2020. doi: 10.4050/JAHS.65.032009

2. Saetti U., Horn J. F., Lakhmani, S., Lagoa C., and Berger, T. Dynamic Inversion and Explicit Model Following Flight Control Laws for Quadrotor UAS, Journal of the American Helicopter Society, Vol. 65, No. 3, 2020. doi: 10.4050/JAHS.65.032006

1. Saetti U., Horn J. F., Berger T., Lopez M., and Tischler M. B., Identification of Linear Time-Periodic Systems from Rotorcraft Flight Test Data, Journal of Guidance, Control, and Dynamics, Vol. 42, No. 10, Jun 2019, pp. 2288-2296. doi: 10.2514/1.G004406

ii. Other: Submissions and Works in Progress

A. Manuscripts under Review

5. Saetti, U., Rogers, J. D., Alam, M., and Jump, M., Tau Theory-Based Flare Control in Autonomous Helicopter Autorotation. Journal of Guidance, Control, and Dynamics, Submitted November 2023.

4. Saetti, U., Chen, Z., Horn, J. F., and Berger, T., On the Vibrational Stability of Rotorcraft. CEAS Journal, Submitted August 2023.

3. **Bugday, B.**, and Saetti, U., Rotorcraft Flight Control Design with Rotor Noise Abatement. Journal of the American Helicopter Society, Submitted July 2023.

2. Saetti U., and Rogers, J. D., Explicit Uncertainty Quantification for Probabilistic Assessment of Rotorcraft Handling Qualities. Journal of the American Helicopter Society, Submitted July 2023.

1. Saetti U., Real-Time Simulation of a Shipborne Rotor via Linearized State-Space Free-Vortex Wake Models. Journal of Aircraft, Submitted April 2023.

F. Manuscripts in Preparation

4. Saetti, U., and Berg, J., Vibrational Stability of an Inverted Pendulum using Harmonic Decomposition.

3. **Marcos, M. T.**, Saetti, U., Berger, T., Godfroy-Cooper, M., and Bachelder, E. N., Full-Body Haptics and Spatial Audio Cueing Algorithms for Augmented Pilot Perception in Degraded/Denied Visual Environments.

2. **Hafez, H.**, Cocco, A., and Saetti, U., Implementation, Linearization, and Order Reduction of a Coupled Panel and Free-Vortex Wake Method in State-Space Form.

1. Saetti, U., Cocco, A., Manjhi, A. K., and Horn, J. F., Implementation and Linearization of a State-Space Free Wake Model with a Near-Wake Vortex Lattice Model.

II.C. Conferences, Workshops, and Talks

Italics indicate undergraduate advisee, **bold** indicates graduate advisee, and underline indicates postdoctoral advisee.

i. Media Apprearances

2. Saetti, U. (June 24, 2023). Fly by Feel: Can we Fly without Vision?. TEDx Mirandola 2023, Mirandola, Italy.

1. Saetti, U. (December 13, 2022). Newton. Un volo sul futuro. Italian National Television (RAI), Rome & Virtual.

ii. Invited Talks

30. Saetti, U. (November 30, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at Sikorsky Aircraft Corporation, Stratford, CT, USA.

29. Saetti, U. (October 20, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at Department of Mechanical Engineering, University of New Mexico, Albuquerque, NM, USA. (Virtual)

28. Saetti, U. (October 13, 2023). Extended Reality Simulation and Control of Rotorcraft. 3rd Seminar on Latest Trends in VTOL Technologies, Indian Institute of Technology Kanpur, Kalyanpur, Kanpur, Uttar Pradesh, India. (Virtual)

27. Saetti, U. (October 11, 2023). Extended Reality Flight Simulation and Control Lab. Seminar at U.S. Army Combat Capabilities Development, Command Aviation & Missile, Moffett Field, CA, USA.

26. Saetti, U. (October 6, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at Department of Mechanical and Aerospace Engineering, University of California, Irvine, CA, USA.

25. Saetti, U. (September 21, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at Department of Aerospace Engineering, Pennsylvania State University, University Park, PA, USA.

24. Saetti, U. (September 11, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at Faculty of Aerospace Engineering, Technical University of Delft, Delft, The Netherlands.

23. Saetti, U. (August 31, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at Centre for Aviation (ZAV), Zurich University of Applied Sciences, Winterthur, Switzerland.

22. Saetti, U. (July 13, 2023). Extended Reality Flight Simulation and Control Lab. Seminar at DEVCOM Army Research Laboratory (Aeromechanics Branch), Aberdeen, MD, USA.

21. Saetti, U. (April 17, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at Institute of Helicopter Technologies and VTOL, Technical University of Munich, Munich, Germany.

20. Saetti, U. (April 12, 2023). Extended Reality Simulation and Control of Rotorcraft. Seminar at German Aerospace Center (DLR), Braunschweig, Germany.

19. Saetti, U. (August 24, 2022). Alfred Gessow Rotorcraft Center Overview. Seminar at AgustaWestland Philadelphia Corporation, Philadelphia, PA, USA.

18. Saetti, U. (April 31, 2022). Pushing the Boundaries of Modeling, Simulation, and Control of Rotorcraft. Seminar at Vertical Flight Society, Philadelphia Chapter, Philadelphia, PA. (Virtual)

17. Saetti, U. (May 24, 2022). Linearized High-Fidelity Aeromechanics for Stability, Control, and Extended Reality Simulation of Rotorcraft. Seminar at Ingegneria Meccanica e Aerospaziale, Politecnico di Torino, Torino, Italy. (Virtual)

16. Saetti, U. (March 10, 2022). Stability, Control, and Extended Reality Simulation of Time-Periodic Aerospace Systems. Seminar at Department of Aerospace Engineering, University of Maryland, College Park, MD, USA.

15. Saetti, U. (April 9, 2021). Networked Flight Simulation and Control Lab. Seminar at Department of Aerospace Engineering, Auburn University, Auburn, AL, USA. (Virtual)

14. Saetti, U. (January 5, 2021). Rotorcraft Flight Control Design with Al-

leviation of Unsteady Rotor Loads. Seminar at School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA. (Virtual)

13. Saetti, U. (December 8, 2020). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at Department of Aerospace Engineering, Auburn University, Auburn, AL, USA. (Virtual)

12. Saetti, U. (November 24, 2020). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at Department of Mechanical and Aerospace Engineering, Carleton University, Ottawa, Canada. (Virtual)

11. Saetti, U. (November 19, 2020). Methods in the Stability Analysis and Control of Periodically-Forced Aerospace Vehicles. Seminar at Department of Aerospace Engineering, Pennsylvania State University, University Park, PA, USA. (Virtual)

10. Saetti, U. (November 6, 2020). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at Department of Mechanical Engineering, University of South Carolina, Columbia, SC, USA. (Virtual)

9. Saetti, U. (October 28, 2020). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC. (Virtual)

8. Saetti, U. (March 12, 2020). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at Department of Mechanical and Aerospace Engineering, University of California, Irvine, CA, USA.

7. Saetti, U. (October 24, 2019). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at Department of Aerospace Engineering, Embry-Riddle Aeronautical University, Daytona Beach, FL, USA.

6. Saetti, U. (July 1, 2019). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at Network for Innovative Rotorcraft Safety (NITROS), Department of Aerospace Engineering, Polytechnic University of Milan (broadcasted live to Delft University of Technology, University of Liverpool, and University of Glasgow), Milan, Italy & Virtual.

5. Saetti, U. (April 17, 2019). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at School of Aerospace Engineering, Georgia Institute of Technology, Atlanta, GA, USA.

4. Saetti, U. (April 11, 2019). Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads. Seminar at AIAA Penn State Chapter, Department of Aerospace Engineering, Pennsylvania State University, University Park, PA, USA.

3. Saetti, U. (December 10, 2018). Identification of Linear Time-Periodic Systems from Flight Test Data. Seminar at U.S. Army Aviation Development Directorate (ADD), NASA Ames Research Center, Moffett Field, CA, USA.

2. Saetti, U. (November 12, 2013). Skyward Experimental Rocketry: The Tsiolkovsky Rocket Equation. Guest Lecture, Theoretical Mechanics Class, Department of Aerospace Engineering, Polytechnic University of Milan, Milan, Italy.

1. Saetti, U. (October 18, 2012). Skyward Experimental Rocketry: A students' Way to Space. Seminar at Department of Aerospace Engineering, Polytechnic University of Milan, Milan, Italy.

iii. Non-Refereed Conference Publications

26. Saetti U., Chen, Z., Horn, J. F., and Berger, T., Vibrational Stability Effects in Rotorcraft Flight Dynamics, 49$^{\text{rd}}$ European Rotorcraft Forum, Bückeburg, Germany, September 5–7, 2023.

25. **Marcos, M. T.**, Saetti, U., Berger, T., Godfroy-Cooper, M., and Bachelder, E. N., Spatial Audio Cueing Algorithms for Augmented Pilot Perception in Degraded/Denied Visual Environments, 49$^{\text{rd}}$ European Rotorcraft Forum, Bückeburg, Germany, September 5–7, 2023.

24. **Morcos M. T**, Fishman, S. M., Cocco, A., Saetti, U., Berger, T., Godfroy-Cooper, M., and Bachelor, E., Full-Body Haptic Cueing algorithms for Augmented Pilot Perception in Degraded/Denied Visual Environments. Vertical Flight Society 79$^{\text{th}}$ Annual Forum, West Palm Beach, FL, May 16-18, 2023. doi: 10.4050/F-0079-2023-18072

23. Saetti U., and **Bugday, B.**, Generic Tilt-Rotor Simulation Model with Coupled Flight Dynamics, State-Variable Aeromechanics, and Aeroacoustics, Vertical Flight Society 79$^{\text{th}}$ Annual Forum, West Palm Beach, FL, May 16-18, 2023. doi: 10.4050/F-0079-2023-18110

22. **Bugday B.**, and Saetti U., Active Reduction of Rotor Noise via Redundant Control Allocation, Vertical Flight Society 79$^{\text{th}}$ Annual Forum, West Palm Beach, FL, May 16-18, 2023. doi: 10.4050/F-0079-2023-18071

21. Saetti U., and Sharan, N., Harmonic Decomposition Models of Periodically-Forced Fluid Flows, AIAA Aviation Forum, Chicago, IL, Jun

27 - Jul 1, 2022. doi: 10.2514/6.2022-3841

20. Saetti U., Linearization of a Rotor Simulation with a State-Space Free-Vortex Wake Model in a Shipboard Environment, AIAA Aviation Forum, Chicago, IL, Jun 27 - Jul 1, 2022. doi: 10.2514/6.2022-3646

19. Saetti U., and Horn J. F., Implementation and Linearization of a State-Space Free-Vortex Wake Model for Flapping-Wing Flight, Vertical Flight Society 78$^{\text{th}}$ Annual Forum, Fort Worth, TX, May 10-12, 2022. doi: 10.4050/F-0078-2022-17578

18. Saetti U., and Horn J. F., Implementation and Linearization of a Rotor Simulation with a State-Space Free-Vortex Wake Model, Vertical Flight Society 78$^{\text{th}}$ Annual Forum, Fort Worth, TX, May 10-12, 2022. doi: 10.4050/F-0078-2022-17577

17. Hayajnh, M. A., Saetti U., and Prasad, J. V. R., Identification of High-Order Linear Time-Invariant Models from Periodic Nonlinear System Responses, Transformative Vertical Flight 2022 Meeting, San Jose, CA, Jan 25-27, 2022.

16. Saetti U., and Horn J. F., Flight Simulation and Control Using the Julia Language, AIAA SciTech Forum, San Diego, CA, Jan 3-7, 2022. doi: 10.2514/6.2022-2354

15. Saetti U., Rogers J. D., Alam, M., Jump, M., and Cameron, N., Dynamic-Inversion Based Flare Control Law for Autonomous Helicopter Autorotation, AIAA SciTech Forum, San Diego, CA, Jan 3-7, 2022. doi: 10.2514/6.2022-1645

14. Horn J. F., Scaramal M., and Saetti U., Load Alleviation Control using Dynamic Inversion with Direct Load Feedback, Vertical Flight Society 77$^{\text{th}}$ Annual Forum, Virtual, May 10-14, 2021. doi: 10.4050/F-0077-2021-16792

13. Saetti U., Rogers J. D., Linear Time-Invariant Models of the Dynamics of Flapping-Wing Flight, Vertical Flight Society 77$^{\text{th}}$ Annual Forum, Virtual, May 10-14, 2021. doi: 10.4050/F-0077-2021-16843

12. Saetti U., Horn J. F., and Brentner, K. S., High-Order Linear Time-Invariant Models of Rotorcraft Flight Dynamics, Vibrations, and Acoustics, Vertical Flight Society 77$^{\text{th}}$ Annual Forum, Virtual, May 10-14, 2021. doi: 10.4050/F-0077-2021-16842

11. Saetti U., and Rogers J. D., A Motion Primitive Prospective on Rotorcraft Regime Recognition, Vertical Flight Society 76$^{\text{th}}$ Annual Forum, Virginia Beach, VA, Oct 6-8, 2020. doi: 10.4050/F-0076-2020-16266

10. Saetti U., and Rogers J. D., Explicit Uncertainty Quantification for Probabilistic Handling Qualities Assessment, Vertical Flight Society 76th Annual Forum, Virginia Beach, VA, Oct 6-8, 2020. doi: 10.4050/F-0076-2020-16389

9. Saetti U., Enciu, J. and Horn J.F., Flight Dynamics and Control of an eVTOL with a Propeller-Driven Rotor, Vertical Flight Society 76th Annual Forum, Virginia Beach, VA, Oct 6-8, 2020. doi: 10.4050/F-0076-2020-16385

8. Saetti U., and Rogers J. D., A probabilistic Approach to Pilot/Vehicle System Performance and Perceived Rotorcraft Handling Qualities, Vertical Flight Society Rotorcraft Handling Qualities Technical Meeting, Huntsville, AL, Feb 18-19, 2020.

7. Saetti U., Horn J. F., Berger T., and Tischler M. B., Rotorcraft Flight Control Design with Alleviation of Unsteady Rotor Loads, Vertical Flight Society 75th Annual Forum, Philadelphia, PA, May 13-16, 2019. doi: 10.4050/F-0075-2019-14587

6. Saetti U., Enciu, J., and Horn J.F., Performance and Design Optimization of the F-Helix eVTOL Concept, Vertical Flight Society 75th Annual Forum, Philadelphia, PA, May 13-16, 2019. doi: 10.4050/F-0075-2019-14488

5. Saetti U., Horn J. F., Lakhmani, S., Lagoa C., and Berger, T., Design of Dynamic Inversion and Explicit Model Following Control Laws for Quadrotor Inner and Outer Loops, American Helicopter Society 74th Annual Forum, Phoenix, AZ, May 14-17, 2018.

4. Saetti U., and Horn J. F., Load Alleviation Control Design Using Harmonic Decomposition Models, Rotor State Feedback, and Redundant Control Effectors, American Helicopter Society 74th Annual Forum, Phoenix, AZ, May 14-17, 2018.

3. Saetti U., and Horn J. F., Use of Harmonic Decomposition Models in Rotorcraft Control Design with Alleviation of Vibratory Loads, 43rd European Rotorcraft Forum, Milan, Italy, Sep 12-15, 2017.

2. Saetti U., Villafana W., Wachspress D., Brentner K. S., and Horn J. F. Rotorcraft Simulations with Coupled Flight Dynamics, Free Wake, and Acoustics, American Helicopter Society 72nd Annual Forum, West Palm Beach, FL, May 16-19, 2016.

1. Li Y., Saetti U., Sharma K., Wachspress D., Horn J. F., and Brentner K. S., Tools for Development and Analysis of Rotorcraft Noise Abatement, American Helicopter Society Sustainability 2015, Montreal, Canada, Sep

22-24, 2015.

iv. Workshops

1. Saetti, U. (August 1-2, 2023). Air Force Studies Board Digital Transformation & Joint Simulation Environment Planning Workshop. Hosted by National Academies of Sciences, Engineering, and Medicine and Air Force. Washington, DC, USA.

II.D. Sponsored Research

i. Grants (total funding w/o cost share: $1.94 M; w/ cost share: $2.24 M)

8. Multimodal Pilot Modeling for Extended Reality Simulation and Control of Manned-Unmanned Teaming, 2023-2024
Source of Support: Lockheed Martin
PI: U. Saetti $150,000

7. CERTIFICATE, 2023-2024
Source of Support: Systems Technology, Inc.
Prime Sponsor: NASA
Program: SBIR Phase I
PI: U. Saetti $8,222

6. Blade Tip Propeller-Driven Autogiro Basic Aeromechanics Characterization, 2022-2026
Source of Support: Office of Naval Research (ONR)
PI: I. Chopra; Co-PI: U. Saetti $600,000

5. Interactional Aerodynamics Modeling and Flight Control Design of Multi-Rotor Unmanned Aircraft Systems, 2022-2023
Source of Support: San Jose State University
Program: Joint Tactical Aerial Resupply Vehicle (JTARV)
Prime Sponsor: NASA
PI: U. Saetti $133,000

4. Linearized High-Fidelity Aeromechanics for Extended Reality Simulation and Control of Shipboard Interactions, 2022-2025
Source of Support: Office of Naval Research (ONR)
Program: Young Investigator Program (YIP)
PI: U. Saetti $510,000

3. State-Variable Implementation and Linearization of Simulations with Multi-Disciplinary Aeromechanic, 2022-2026
Source of Support: Department of the Army
Program: Vertical Lift Research Center of Excellence (VLRCOE)
PI: U. Saetti; Co-PI: J. F. Horn, K. S. Brentner $461,143 (plus UMD

Cost Share $299,743)

2. State-Variable Implementation and Linearization of Simulations with Multi-Disciplinary Aeromechanic, 2022-2026
Source of Support: Pennsylvania State University
Prime Sponsor: Department of the Army
Program: Vertical Lift Research Center of Excellence (VLRCOE)
PI: U. Saetti; Co-PI: J. F. Horn, K. S. Brentner $9,890

1. Performance and Design Optimization of the F-Helix eVTOL Concept, 2018-2019
Source of Support: Vinati, S.R. L.
PI: J. F. Horn; Co-PI: U. Saetti $63,000

II.E. Research Fellowships, Prizes, and Awards

2. Office of Naval Research (ONR) Young Investigator Program (YIP) Award, 2022.

1. Barnes McCormick Memorial Scholarship, Vertical Flight Foundation, 2019.

III. Teaching, Extension, Mentoring and Advising.

III.A. Courses Taught

i. Polytechnic University of Turin

- Flight Dynamics and Control of Vertical Lift Vehicles (short course); Summer 2023.

ii. University of Maryland

- ENAE 635 Helicopter Stability and Control; Spring 2023.

iii. Auburn University

- AERO 3230 Flight Dynamics; Spring 2022.
- AERO 4970/7970 Rotorcraft Aeromechanics; Fall 2021.

iv. Georgia Institute of Technology

- AE 4531 Aircraft Flight Dynamics; Spring 2021.
- AE 4071 Rotorcraft Aeromechanics; Spring 2020.

v. Polytechnic University of Milan

- Aeronautical Systems - Guidance and Control (joint MathWorks, Inc. and Skyward Experimental Rocketry project-based short course); Fall 2014.

III.B. Teaching Innovations

i. Course or Curriculum Development

- ENAE 635: Helicopter Stability and Control
  Redesigned course: updated course topics to include more of a focus on modern flight control design and computational methods for flight dynamics. Changed programming language to MATLAB®/Simulink.

III.C. Advising: Research

i. Undergraduate Research Advisor

2. Ben Ganelin, Departmental Honors Student, 2022–2024
   Accuracy and Precision Characterization of Full-Body Haptic Feedback

1. Dogyu Jun, Independent Research Project, 2022–2023
   Interactional Aerodynamics Modeling and Flight Control Design of Multi-Rotor Unmanned Aircraft Systems
   Placement: Graduate School, University of Maryland, College Park, MD

ii. Masters

Thesis Advisor:

2. Madeline Fischer, 2023–Present
   Statistics

1. Dogyu Jun, 2023–Present
   Aerospace Engineering

Committee Member:

5. Dylan Black, University of Maryland, 2023
   M.S. Thesis: *The Effect of Confined Areas on Helicopter Performance*

4. Cole Shenk, University of Maryland, 2023
   M.S. Thesis: *Hover Performance of a Teetering Rotor in Confined Areas*

3. Jack Prewitt, University of Maryland, 2023
   M.S. Thesis: *Effect of Sloped Terrain on in-Ground-Effect Hover Performance for an Isolated Rotor*

2. Eric Greenbaum, University of Maryland, 2023
   M.S. Thesis: *Flight Dynamics of a Coaxial Helicopter Hovering on Mars*

1. Daniele Migliore, Politecnico di Milano, 2019
   M.S. Thesis: *Model identification and inversion-based control for multi-rotor UAVs*

iii. Doctoral

Dissertation Advisor:

3. Hussien Hafez, 2023–Present
   Aerospace Engineering

2. Batin Bugday, 2022–Present
   Aerospace Engineering

1. Michael T. Morcos, 2022–Present
   Aerospace Engineering, Computer Science

Committee Member:

2. Simone Godio, Politecnico di Torino, 2023
   Ph.D. Dissertation: *Artificial Intelligence Applications for Drones Navigation in GPS-denied or degraded Environments*

1. Alexander Steinwandel, University of Stuttgart, 2023
   Ph.D. Dissertation: *On the Role of the Number of Rotor Blades for Helicopter Vibrations*

iv. Post-doctoral Research Advisor

1. Alessandro Cocco, 2023–Present
   Alfred Gessow Rotorcraft Center Postdoctoral Fellow

III.D. Other Advising Activities *(Include advising student groups, special assignments, recruiting, etc.)*

- Faculty advisor to Vertical Flight Society Student Chapter, 2022–present

III.E. **Service and Outreach**

i. Editorships, Editorial Boards, and Reviewing Activities

A. Editorships

- Journal of the American Helicopter Society, Associate Editor, 2022–Present

B. Reviewing Activities for Journals and Presses

- Journal of Guidance, Control, and Dynamics (JGCD)
- Journal of the American Helicopter Society (JAHS)
- Journal of Optimization Theory and Applications (JOTA)
- Journal of Intelligent and Robotic Systems

- International Journal of Aerospace Engineering
- Aerospace Science and Technology
- Council of European Aerospace Societies (CEAS) Aeronautical Journal

C. Reviewing Activities for Agencies and Foundations

- Military Operational Medicine Research Program (MOMRP) AVL-1 Panel

D. Reviewing Activities for Conferences

- IEEE International Conference on Robotics and Automation (ICRA)

ii. Committees, Professional, and Campus Service

A. Campus Service - Department

- Chair, Minta Martin Seminar Series, 2024–Present
- Member, Hiring Committee, Assistant Professor in Vertical Lift, 2023–2024
- Member, ENAE Dynamics, Control, and Autonomy Committee, 2022–Present

B. Campus Service - College

- Member, Maryland Robotics Center (MRC) Future Leaders Seminar Series Committee, 2023–Present

C. Leadership Roles in Meetings and Conferences

- Committee Chair, Handling Qualities Technical Committee, Vertical Flight Society (VFS) 80$^{\text{th}}$ Annual Forum, May 2024
- Session Chair, Handling Qualities Technical Committee, Vertical Flight Society (VFS) 79$^{\text{th}}$ Annual Forum, May 2023
- Member, Handling Qualities Technical Committee, Vertical Flight Society (VFS) 79$^{\text{th}}$ Annual Forum, May 2022