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`
Scopus: `https://www.scopus.com/authid/detail.uri?authorId=57192229769`
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 Maryland Robotics 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)
Senior 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. In preparation.

II.B. Refereed Journals

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

i. Refereed Journal Articles

18. **Bugday, B.**, and Saetti, U., Rotorcraft Flight Control Design with Rotor Noise Abatement, Journal of the American Helicopter Society, Accepted for Publication, 2024.

17. Saetti U., Real-Time Simulation of a Shipborne Rotor via Linearized State-Space Free-Vortex Wake Models, Journal of Aircraft, Article in Advance, 2024. doi: 10.2514/1.C037389

16. Saetti, U., Horn, J. F., and Berger, T., On the Effects of Rotor Induced Vibrational Stability on Helicopter Flight Dynamics, CEAS Aeronautical Journal,Article in Advance, 2024. doi: 10.1007/s13272-024-00718-w

15. Saetti, U., Rogers, J. D., Alam, M., and Jump, M., Tau Theory-Based Flare Control in Autonomous Helicopter Autorotation, Aerospace, Vol 11, No. 1, 2024, pp. 1-21(21). doi: 10.3390/aerospace11010033

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, Journal of the American Helicopter Society, Vol. 69, No. 2, 2024, pp. 1-14(14). 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, 2024, pp. 1-18(18). 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, 2023, pp. 42004-42017(14). 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, 2023, pp. 1-10(10). 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, pp. 1371-1384(14). 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., 2022, pp. 153-166(14). 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, 2022, pp. 1-19(19). 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, 2021, pp. 364-376(13). 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, 2021, pp. 1-19(19). 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, pp. 1008-1017(10). doi: 10.2514/1.G005553

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(13). 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, pp. 1-15(15). 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, pp. 1-16(16). 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, 2019, pp. 2288-2296(9). doi: 10.2514/1.G004406

ii. Perspectives, Opinions, and Letters

iii. <u>Other: Submissions and Works in Progress</u>

A. Manuscripts under Review

3. **Morcos, M. T.**, **Fishman, S. M.**, Saetti, U., Berger, T., Godfroy-Cooper, M., and Bachelder, E. N., Full-Body Haptic and Spatial Audio Cueing Algorithms for Enhanced Pilot-Vehicle System Performance. Journal of Guidance, Control, and Dynamics, Submitted January 2024.

2. **Hafez, H.**, Cocco, A., and Saetti, U., Implementation and Linearization of a Coupled Panel and Vortex Particle Method in State-Space Form. AIAA Journal, Submitted December 2023.

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

D. Manuscripts in Preparation

3. Saetti, U., and Guner, F., Stability and Control of Multi-Rotor Aircraft with Dynamic Modeling of Rotor-on-Rotor Interactions.

2. **Hafez, H.**, Cocco, A., and Saetti, U., Implementation and Linearization of a Rotor Simulation with a Coupled Panel and Vortex Particle Method in State-Space Form.

1. Saetti, U., **Bugday, B.**, 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. Refereed Conference Proceedings

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

29. **Hafez, H.**, Cocco, A., and Saetti, U., Implementation of a Rotor Simulation with a Coupled Panel and Free-Vortex Wake Method in State-Space Form, 6$^{\text{th}}$ Decennial VFS Aeromechanics Specialists' Conference, Santa Clara, CA, February 6–8, 2024.
28. Saetti U., and Guner, F., Interactional Aerodynamics Modeling and Flight Control Design of Multi-Rotor Aircraft, 6$^{\text{th}}$ Decennial VFS Aeromechanics Specialists' Conference, Santa Clara, CA, February 6–8, 2024.
27. **Hafez, H.**, Cocco, A., and Saetti, U., Implementation and Linearization of a Coupled Panel and Free-Vortex Wake Method in State-Space Form, AIAA SciTech Forum, Orlando, FL, January 8–12, 2024. 10.2514/6.2024-2265
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 79th 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 79th 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 79th 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 78th 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 78th 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 77th 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 77th 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 77th 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 76th 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.

II.D. Conferences, Workshops, and Talks

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

i. Media Appearances

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

34. Saetti, U. (June 27, 2024). Extended Reality Simulation and Control of Rotorcraft. Seminar at NASA Langley Research Center, Langley, VA, USA.

33. Saetti, U. (March 19, 2024). Extended Reality Simulation and Control of Rotorcraft. Seminar at Department of Civil, Computational Science and Aeronautical Technologies Engineering, Roma Tre University, Roma, Italy.

32. Saetti, U. (March 18, 2024). Extended Reality Simulation and Control of Rotorcraft. Seminar at Department of Industrial Engineering, University of Bologna, Forlì, Italy.

31. Saetti, U. (March 15, 2024). Extended Reality Simulation and Control of Rotorcraft. Seminar at Department of Aerospace Science and Technology (DAER), Polytechnic University of Milan, Milan, Italy.

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 Dipartimento di 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

iv. Refereed Abstracts

v. Non-Refereed Presentations

vi. Non-Refereed Abstracts

vii. Non-Refereed Posters

viii. Non-Refereed Panels

ix. Symposia

x. 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.

xi. Other

II.E. Sponsored Research

i. Grants (total funding w/o cost share: \$2.19 M; w/ cost share: \$2.49 M)

9. Extended Reality Simulation and Control of Aerospace Vehicles with Brain Activity Monitoring, 2024-2025
Source of Support: Office of Naval Research (ONR)

Program: Defense University Research Instrumentation Program (DURIP)
PI: U. Saetti $251,535

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 $67,000

II.F. Research Fellowships, Prizes, and Awards

3. Defense University Research Instrumentation Program (DURIP) Award, 2024.

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. University of Maryland

- ENAE 635 Helicopter Stability and Control; Spring 2023, 2024.
- ENAE 432 Control of Aerospace Systems; Spring 2024.

ii. Polytechnic University of Turin

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

- ENAE 432: Control of Aerospace Systems
  Redesigned discussion sessions: updated discussion sessions to include control design exercises applied to aerospace vehicles of interest (fixed- and rotary-wing aircraft, spacecraft).

III.C. Advising: Research

i. Undergraduate Research Advisor

4. Adithya Sundar, Independent Research Project, 2024–2026
   Multimodal Pilot Modeling for Extended Reality Simulation and Control of Manned-Unmanned Teaming,

3. Saketh Vegunta, Departmental Honors Student, 2024–2026
   Pilot Workload Estimation via Neurophysiological Measurements

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
   Status: Passed Qualification Exam

1. Michael T. Morcos, 2022–Present
   Aerospace Engineering, Computer Science
   Awards: Outstanding Graduate Assistant Award (AY 2023-24)

Committee Member:

5. Mariano Scaramal, Pennsylvania State University, 2024
   Ph.D. Dissertation: *Trim Optimization of Over-Actuated Rotorcraft using Extremum Seeking Control*

4. Spencer Fishman, University of Maryland, 2024
   Ph.D. Dissertation: *Aeroelastic Stability Analysis of Rotor Blades at High Advance Ratios*

3. Giovanni Gozzini, Politecnico di Milano, 2024
   Ph.D. Dissertation: *Hybrid Control Techniques for UAVs*

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

v. Visiting Students

3. Gabriele Luzzani, Politecnico di Torino, 2023–2024
   PhD Student, Aerospace Engineering

2. Marco Rinaldi, Politecnico di Torino, 2023–2024
   PhD Student, Aerospace Engineering

1. Warren Dufrenne, 2023
   M.S. Student, Aerospace Engineering

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

- Aerospace, Special Issue: Vertical Lift: Rotary- and Flapping-Wing Vehicles, Guest Editor, 2024
- Journal of the American Helicopter Society, Associate Editor, 2022–Present

B. Editorial Boards

C. Reviewing Activities for Journals and Presses

- Journal of Guidance, Control, and Dynamics (JGCD)
- Journal of Aircraft (JA)
- Journal of the American Helicopter Society (JAHS)
- Council of European Aerospace Societies (CEAS) Aeronautical Journal
- Journal of Optimization Theory and Applications (JOTA)
- Journal of Intelligent and Robotic Systems
- International Journal of Aerospace Engineering
- Aerospace Science and Technology

D. Reviewing Activities for Agencies and Foundations

- 2025 Military Operational Medicine Research Program (MOMRP) Aviation and Vertical Lift (AVL) - 2 Panel
- 2025 Military Operational Medicine Research Program (MOMRP) Avi-

ation and Vertical Lift (AVL) - 1 Panel

- 2024 Military Operational Medicine Research Program (MOMRP) Aviation and Vertical Lift (AVL) - 1 Panel

E. 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, Qualification and Comprehensive Exams Revision Committee, 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. Campus Service - University

D. Offices and Committee Memberships

E. Leadership Roles in Meetings and Conferences

- Member, Modeling and Simulation Technical Committee, American Institute of Aeronautical and Astronautics (AIAA), 2024–Present
- Committee Chair, Handling Qualities Technical Committee, Vertical Flight Society (VFS), 2023–Present
- Session Chair, Handling Qualities Technical Committee, Vertical Flight Society (VFS), 2022–2023
- Member, Handling Qualities Technical Committee, Vertical Flight Society (VFS) 79^{th} Annual Forum, 2022

F. Other Non-University Committees, Memberships, Panels, etc.

iii. External Service and Consulting

iv. Community Engagements, Local, State, National, International

v. International Activities

vi. Corporate and Other Board Memberships

vii. Consultancies (to local, state and federal agencies; companies; organizations)

viii. Non-Research Presentations

ix. Outreach Presentations

x. Community & Other Service