

GÖKÇİN ÇINAR

Assistant Professor of Aerospace Engineering, University of Michigan
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EDUCATION

Georgia Institute of Technology, Atlanta, GA, USA 2012 - 2018
Ph.D. in Aerospace Engineering, 2018
M.S. in Aerospace Engineering, 2015

Middle East Technical University, Ankara, Türkiye 2008 - 2012
B.S. in Aerospace Engineering, 2012

ACADEMIC POSITIONS

University of Michigan, Ann Arbor, MI, USA January 2022 - Present
Assistant Professor, Department of Aerospace Engineering
Director of the Integrated Design of Efficient Aerospace Systems (IDEAS) Laboratory

IDEAS Lab aims to advance computational methods for system-level design and optimization of aerospace systems, with a focus on future aircraft and propulsion concepts. Research topics include multidisciplinary design, analysis and optimization; physics-based and data-driven modeling; statistical and probabilistic design methods; model-based systems engineering; electrified and hydrogen propulsion aircraft applications.

Georgia Institute of Technology, Atlanta, GA, USA November 2018 - December 2021
Research Engineer II at Aerospace Systems Design Laboratory

Led and collaborated with multi-disciplinary groups to conduct fundamental research funded by various sponsors from the industry and government. Advised graduate students on their projects and theses. Supported meetings and interact directly with sponsors/clients from government and industry. Led and developed proposals, managed research activities among other research faculty and graduate students, managed schedules, budgets and deliverables. Served at technical and organizing committees at AIAA.

Georgia Institute of Technology, Atlanta, GA, USA August 2012 - November 2018
Senior Graduate Researcher (2017-2018)–Graduate Researcher (2012-2017) at Aerospace Systems Design Laboratory (Advisor: Prof. Dimitri N. Mavris)

Led and worked with multi-disciplinary groups to conduct fundamental research funded by various sponsors from the industry and government. Mentored graduate students on their class projects. Supported meetings and interact directly with sponsors/clients from the government and industry.

TEACHING

- Complex Systems Design & Integration, Winter 2024–2025 (AEROSP 740, U-M)
- Aircraft Design, Fall 2022–2024 (AEROSP 481, U-M)
- Aerospace Tools and Methods - MBSE, Winter 2023 (AEROSP 388, U-M)

HONORS AND AWARDS

- AIAA Lawrence Sperry Award, 2025. Citation: “*For pioneering research and innovative contributions to electrified aircraft systems and sustainable aviation.*”
- Young Scientist Award by International Sustainable Aviation and Energy Research Society (SARES), 2024.
- Best Paper in AIAA/IEEE Electric Aircraft Technologies Symposium, AIAA Aviation Forum, Sep. 2024.
- Boeing Visiting Professor Program Fellow, June 2024.
- Best Paper in IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium, June 2022.
- 1st place in 29th Annual AHS/Industry Student Design Competition – Rotary Wing Pylon Racer, Middle East Technical University & Georgia Institute Of Technology, Team “Badger”, 2012.
- 1st place in Istanbul Technical University VTOL Unmanned Aircraft Design Competition, Team “Efes”, 5-16 September 2011.

Advised Student Awards

- Best Student Paper in AIAA/IEEE Electric Aircraft Technologies Symposium, AIAA Aviation Forum, Sep. 2024 (Student name: Yi-Chih Wang).

SOFTWARE

- Future Aircraft Sizing Tool (FAST). Available here under an open-source license. [J4, J5, C32, C30, C29]
- Aircraft and Engine Registry Open-Source Database (FAST AEROBASE). Available here under an open-source license. [J5, J6, C30]
- Electrified Propulsion Architecture Sizing and Synthesis (E-PASS)

PUBLICATIONS

Note: *Underlined names denote advised graduate students; names* indicate advised undergraduate students; names† indicate advised postdoctoral researchers.*

Doctoral Dissertation: “A Methodology for Dynamic Sizing of Electric Power Generation and Distribution Architectures,” **G. Cinar**, Georgia Institute of Technology, 2018.

Journal Papers

- J6. M. Arnson, R. Aljaber*, **G. Cinar**. “Predicting Conceptual Aircraft Design Parameters Using Gaussian Process Regressions on Historical Data”. *Journal of Aircraft*, submitted, 1/2025.
- J5. H. Acar, M. Arnson, M. Tsai, **G. Cinar**. “Historical Trends and Future Projections of Key Performance Parameters in Aircraft Design.” *Journal of Aircraft*, submitted, 12/2024.
- J4. P. R. Mokotoff, M.G. Arnson, **G. Cinar**, “FAST: A Future Aircraft Sizing Tool for Advanced Aircraft and Propulsion System Design.” *Journal of Open Source Software*, submitted, 11/2024.
- J3. **G. Cinar**, Y. Cai, M. V. Bendarkar†, A. I. Burrell, R.K. Denney, and D. N. Mavris. “System Analysis and Design Space Exploration of Regional Aircraft with Electrified Powertrains,” *Journal of Aircraft*, vol. 60, no. 2, pp. 382–409, Mar. 2023. DOI: 10.2514/1.C036919
- J2. **G. Cinar**, E. Garcia, D.N. Mavris, “A Framework for Electrified Propulsion Architecture and Operation Analysis,” *Aircraft Engineering and Aerospace Technology*, Vol. 92 No. 5, pp. 675-684, 2019. DOI: 10.1108/AEAT-06-2019-0118

- J1. **G. Cınar**, H. Jimenez, D.N. Mavris, “A Categorical Model for Airport Capacity Estimation Using Hierarchical Clustering,” *Journal of Aerospace Operations*, Vol. 4 No. 4, pp. 245-273, 2017. DOI: 10.3233/AOP-170069

Archival Conference Papers

- C32. P. R. Mokotoff, M. Arnson, Y.C. Wang, **G. Cınar**. “FAST: A Future Aircraft Sizing Tool for Conventional and Electrified Aircraft Design”. AIAA SciTech 2025 Forum, Orlando, FL, 2025. DOI: 10.2514/6.2025-2374
- C31. Y.C Wang, M. Stockhausen, P. R. Mokotoff, M. Arnson, **G. Cınar**. “SUBsonic Single Aft eNginE (SUSAN) System Integration Analysis with the Future Aircraft Sizing Tool (FAST)”. AIAA SciTech 2025 Forum, Orlando, FL, 2025. DOI: 10.2514/6.2025-2376
- C30. M. Arnson, R. Aljaber*, **G. Cınar**. “Predicting Conceptual Aircraft Design Parameters Using Gaussian Process Regressions on Historical Data”. AIAA SciTech 2025 Forum, Orlando, FL, 2025. DOI: 10.2514/6.2025-1287
- C29. N. Khailany*, P. R. Mokotoff, **G. Cınar**. “Aircraft Geometry and Propulsion Architecture Visualization for the Future Aircraft Sizing Tool (FAST)”. AIAA SciTech 2025 Forum, Orlando, FL 2025. DOI: 10.2514/6.2025-1288
- C28. S. S. Jagtap†, A. Strehlow, M. Reitz*, S. Kestler, G. Cınar. “Model-based systems engineering approach for a systematic design of aircraft engine inlet”. AIAA SciTech 2025 Forum, Orlando, FL, 2025. DOI: 10.2514/6.2025-1410
- C27. B. Chan, Y. Deng, N. Tran, H. Wu, M. Ikeda, **G. Cınar**, M. Z. Li. “Optimizing Fleet Assignment Decisions for Regional Airlines with Hybrid Electric Aircraft Uptake.” 34th Congress of the International Council of the Aeronautical Sciences, Florence, Italy, 2024. icas2024 0781
- C26. M.G. Arnson, **G.Cınar**, E. Waddington, P.J. Ansell, M.A. Clarke, R. de Vries, F. Salucci, N. Prabhakar, J.C. Gladin, M. Shi, E. Lovelace, P. de Bock. “System-Level Energy Pack Requirements for Sustainable Commercial Aviation.” AIAA AVIATION Forum and ASCEND 2024, Las Vegas, NV, 2024. **Best Paper Award**. DOI: 10.2514/6.2024-3828
- C25. Y.C. Wang, **G. Cınar**. “Modeling and Simulation of High Temperature Proton Exchange Membrane Fuel Cells in Parallel Hybrid Electric Turboprop Aircraft with Multi Whale Optimization Algorithms.” AIAA AVIATION Forum and ASCEND 2024, Las Vegas, NV, 2024. **Best Student Paper Award**. DOI: 10.2514/6.2024-3829
- C24. N. Wongprapinkul, A. W. Johnson, M. Z. Li, O. Jia-Richards, **G. Cınar**. “Development of a Plume Evolution Model for Launch Vehicle Ground Cloud Deposition.” AIAA AVIATION Forum and ASCEND 2024, Las Vegas, NV, 2024. DOI: 10.2514/6.2024-4942
- C23. M. Stevens*, A. W. Johnson, M. Z. Li, **G. Cınar**, O. Jia-Richards. “Development of a Qualitative Model for Predicting Soil Acidification Due to Solid Rocket Motor Exhaust.” AIAA AVIATION Forum and ASCEND 2024, Las Vegas, NV, 2024. DOI: 10.2514/6.2024-4943
- C22. H. Wu, Y. S. Lin, K. R. Sun, T. Koduru, **G. Cınar**, A. W. Johnson, O. Jia-Richards, M. Z. Li. “Natural Disaster-Resilient Spaceport Network Planning.” AIAA AVIATION Forum and ASCEND 2024, Las Vegas, NV, 2024. DOI: 10.2514/6.2024-4930
- C21. S. Olson, **G. Cınar**, M. Z. Li, O. Jia-Richards, A. W. Johnson. “A Review of Documented Community Impacts due to Spaceport Development.” AIAA AVIATION Forum and ASCEND 2024, Las Vegas, NV, 2024. DOI: 10.2514/6.2024-4928
- C20. Y. Deng, A. Kryuchkov, P. Mokotoff, E. Smith*, J. Patel, S.G. Lavanchy*, M.Z. Li, and **G. Cınar**, (2023). “Operational Analysis for Hybrid Electric Aircraft Fleets: A feasibility study for the short-and

medium-haul markets,” AIAA AVIATION 2023 Forum and AIAA/IEEE Electric Aircraft Technologies Symposium, San Diego, CA, 2023. DOI: 10.2514/6.2023-3868

- C19. **G. Cınar**, Y. Cai, R. K. Denney, and D. N. Mavris. “Modeling and Simulation of Hybrid Electric Thin-Haul and Regional Aircraft for the Electrified Powertrain Flight Demonstration Program,” 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium, Anaheim, CA, 2022. *Best Paper Award*. DOI: 10.1109/itec53557.2022.9813832
- C18. Y. Cai, J. Xie, **G. Cınar**, and D. N. Mavris. “Advanced 2030 Turboprop Aircraft Modeling for the Electrified Powertrain Flight Demonstration Program,” 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium, Anaheim, CA, 2022. DOI: 10.1109/ITEC53557.2022.9813858
- C17. A. A. Markov, **G. Cınar**, J. Brooks, R. Denney, E. Garcia, R. K. Denney, D. N. Mavris, and S. S. Patnaik. “Analysis of a Hybrid Partial Turboelectric Distributed Propulsion System for a Medium Altitude Long Endurance UAV,” 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium, Anaheim, CA, 2022. 10.1109/ITEC53557.2022.9813926
- C16. C. L. Pastra, C. Hall, **G. Cınar**, J. C. Gladin, and D. N. Mavris. “Specific Power and Efficiency Projections of Electric Machines and Circuit Protection Exploration for Aircraft Applications,” 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium, Anaheim, CA, 2022. 10.1109/ITEC53557.2022.9813927
- C15. C. L. Pastra, R. F. Berumen, C. Dull, C. Yumuk, **G. Cınar**, and D. N. Mavris. “Viability Study of an Electrified Regional Turboprop,” 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium, Anaheim, CA, 2022. 10.1109/ITEC53557.2022.9813756
- C14. M. Shi, M. Ozcan, **G. Cınar**, and D. N. Mavris. “Finalized Design and Performance Analysis of a Hybrid Turbo-Electric Regional Jet for the NASA ULI Program,” 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium, Anaheim, CA, 2022. 10.1109/ITEC53557.2022.9814048
- C13. C. L. Pastra, **G. Cınar**, and D. N. Mavris. “Feasibility and Benefit Assessments of Hybrid Hydrogen Fuel Cell and Battery Configurations on a Regional Turboprop Aircraft,” AIAA Aviation Forum, Chicago, IL, 2022. 10.2514/6.2022-3290
- C12. **G. Cınar**, Y. Cai, M. V. Bendarkar†, A. I. Burrell, R. K. Denney, and D. N. Mavris. “System Analysis and Design Space Exploration of Regional Aircraft with Electrified Powertrains,” AIAA SciTech Forum, San Diego, CA, 2022. 10.2514/6.2022-1994
- C11. A. A. Markov, **G. Cınar**, J. C. Gladin, E. Garcia, R. K. Denney, D. N. Mavris, and S. S. Patnaik. “Performance Assessment of a Distributed Electric Propulsion System for a Medium Altitude Long Endurance Unmanned Aerial Vehicle,” AIAA/IEEE Electric Aircraft Technologies Symposium, 2021. 10.2514/6.2021-3289
- C10. M. Shi, **G. Cınar**, and D. N. Mavris. “Fleet Analysis of a Hybrid Turboelectric Commercial Regional Jet under NASA ULI Program,” AIAA/IEEE Electric Aircraft Technologies Symposium, 2021. 10.2514/6.2021-3327
- C9. **G. Cınar**, A. A. Markov, J. C. Gladin, E. Garcia, D. N. Mavris and S. S. Patnaik. “Feasibility Assessments of a Hybrid Turboelectric Medium Altitude Long Endurance Unmanned Aerial Vehicle,” AIAA/IEEE Electric Aircraft Technologies Symposium, 2020. 10.2514/6.2020-3577
- C8. C. Perullo, M. Shi, **G. Cınar**, A. Alahmad, M. Sanders, D. N. Mavris and M. Benzakein. “An Update on Sizing and Performance Analysis of a Hybrid Turboelectric Regional Jet for the NASA ULI Program,” AIAA/IEEE Electric Aircraft Technologies Symposium, 2020. 10.2514/6.2020-3590
- C7. M. Shi, M. Sanders, A. Alahmad, C. Perullo, **G. Cınar**, and D. N. Mavris. “Design and Analysis of the

Thermal Management System of a Hybrid Turboelectric Regional Jet for the NASA ULI Program,” AIAA/IEEE Electric Aircraft Technologies Symposium, 2020. 10.2514/6.2020-3572

- C6. A.T. Van Zwieten, **G. Cınar**, E. Garcia, J.C. Gladin and D.N. Mavris, “Transient Surrogate Modeling for Thermal Management Systems,” AIAA SciTech Forum, Orlando, FL, 2020. 10.2514/6.2020-1616
- C5. **G. Cınar**, Y. Cai, I. Chakraborty, D. N. Mavris, “Sizing and Optimization of Novel General Aviation Vehicles and Propulsion System Architectures,” 2018 Aviation Technology, Integration, and Operations Conference, AIAA AVIATION Forum, Atlanta, GA, 2018. 10.2514/6.2018-3974
- C4. **G. Cınar**, D.N. Mavris, M. Emeneth, A. Schneegans, C. Riediger, Y. Fefermann, and A. Isikveren, “Sizing, Integration and Performance Evaluation of Hybrid Electric Propulsion Subsystem Architectures”, 55th AIAA Aerospace Sciences Meeting, AIAA SciTech Forum, Grapevine, TX, 2017. 10.2514/6.2017-1183
- C3. **G. Cınar**, D.N. Mavris, M. Emeneth, A. Schneegans, and Y. Fefermann, “Development of Parametric Power Generation and Distribution Subsystem Models at the Conceptual Aircraft Design Stage,” 55th AIAA Aerospace Sciences Meeting, AIAA SciTech Forum, Grapevine, TX, 2017. 10.2514/6.2017-1182
- C2. **G. Cınar**, M. Emeneth, and D.N. Mavris, “A Methodology for Sizing and Analysis of Electric Propulsion Subsystems for Unmanned Aerial Vehicles,” 54th AIAA Aerospace Sciences Meeting, AIAA SciTech Forum, San Diego, CA, 2016. 10.2514/6.2016-0216
- C1. R.W. Roe, S. T. Ford, **G. Cınar**, Z. Mian, and D. N. Mavris, “A Multi-Disciplinary Integrated Design Environment for Requirements Development and Performance Evaluation of Autonomous Systems,” 14th AIAA Aviation Technology, Integration, and Operations Conference, Atlanta, GA, 2014. 10.2514/6.2014-2719

Refereed Conference Summaries/Abstracts

- A4. A. Schneegans, **G. Cınar**, and D. N. Mavris, “Model-Based Sizing and Analysis of Hybrid-Electric Propulsion Architectures,” Electric and Hybrid Aerospace Technology Symposium, Cologne, Germany, November 2016
- A3. G.B. Hospodarsky, J.S. Leisner, **G. Cınar**, W. Kurth, D.A. Gurnett, and O. Santolik, “Quasi-Periodic Whistler Mode Emissions in Saturn’s Inner Magnetosphere,” European Geosciences Union General Assembly, Vienna, Austria, 2016
- A2. J.S. Leisner, **G. Cınar**, G.B. Hospodarsky, P. Schippers, D.A. Gurnett, O. Santolik, and A.J. Coates, “Evidence of Time-Variable Electrons at Saturn: Quasi-Periodic Whistler Mode Emissions in the Inner Magnetosphere,” European Planetary Science Congress Division for Planetary Sciences/AAS, Nantes, France, 2011
- A1. J.S. Leisner, **G. Cınar**, G.B. Hospodarsky, P. Schippers, D.A. Gurnett, O. Santolik, and A.J. Coates, “First Analysis of Quasi-Periodic Whistler Mode Emissions in Saturn’s Inner Magnetosphere,” poster presented at American Geophysical Union Meeting, San Francisco, CA, 2010

Other Writing

Publications in popular press/magazines

- M4. **G. Cınar**, and P. Ansell, “Electrified aircraft ground and flight tests continue progress toward sustainable aviation,” *Aerospace America*, December 2022
- M3. **G. Cınar**, “Electric planes are coming: Short-hop regional flights could be running on batteries in a few years,” *The Conversation*, September 2022
- M2. **G. Cınar**, and P. Ansell, “Electrified aircraft flight tests moving at full throttle,” *Aerospace America*, December 2020

- M1. M. Ikeda, **G. Cinar**, and J. Nairus, “Hybrid electric concepts move toward demonstration,” *Aerospace America*, December 2019

Technical Reports

- T1. International Civil Aviation Organization, “Report on the Feasibility of a Long-Term Aspirational Goal”, March 2022 (*technical contributions to the “Technologies Steering Group”*)

SELECTED PRESENTATIONS AND INVITED TALKS

Keynotes

- K2. “Systems Design and Integration of Electrified Aircraft Technologies,” 2023 IEEE Power and Energy Conference at Illinois (PECI), March 2023.
- K1. “How Can You Create Expert Systems Engineers at the Undergraduate Level?,” co-presented with G. Halow and J. Weiss at INCOSE International Workshop, January 2022.

Panels and Webinars

- P7. **G. Cinar**, R. K. Agarwal, U. Kale, P. Maksimovic, V. Szabo, N. Yılmaz, H. Karakoc, “Technical Challenges in Sustainable Aviation Panel”, AIAA Aviation Forum, Las Vegas, NV, Panelist, August 2024.
- P6. **G. Cinar**, A. Bierig, R. Botez, U. Kale, L. Konukcu, V. Szabo, H. Karakoc, “Disruptive Technologies in Sustainable Aviation Forum 360”, AIAA Aviation Forum, Las Vegas, NV, Panelist, July 2024.
- P5. **G. Cinar**, B. Ozpineci, M. Jones, “Sustainable Electrification of Transportation Systems,” Government-University-Industry Research Roundtable Webinars (GUIRR), National Academies of Sciences, Engineering, and Medicine and AIAA. July 2023.
- P4. **G. Cinar**, A. Kim, E. Generas, L. Baukus, O. P. Fischer, M. Maiaru, “Digital Workforce Development Best Practices Panel,” 2023 Dayton Digital Transformation Summit. May 2023.
- P3. **G. Cinar**, A. Kim, E. Generas, L. Baukus, O. P. Fischer, M. Maiaru, “Digital Workforce Development Best Practices Panel,” 2023 AIAA SciTech Forum. January 2023.
- P2. **G. Cinar**, S. Bal, S. Akay, “Powering the Future Summit,” IEEE Women in Transportation and Electrification Community, webinar. December 2021.
- P1. **G. Cinar**, “NASA University Led Initiative: Electric Propulsion - Opportunities and Challenges Panel,” AIAA/IEEE Electric Aircraft Technologies Symposium (EATS), virtual event. August 2020.

Invited Seminars and Talks

- S12. “Designing the Future of Flight: Computational Advances for Net-Zero Aviation,” Bogazici University, December 2024.
- S11. “Sustainable Aviation Meets Advanced Computing: Tools and Methods for the Future of Flight,” Istanbul Technical University, December 2024.
- S10. “Sustainable Aviation Meets Advanced Computing: Tools and Methods for the Future of Flight,” Middle East Technical University, December 2024.
- S9. “Crafting the Future of Flight: Electrification Through the Lens of Systems Thinking,” Sabanci University, April 2024.
- S8. “Maximizing Sustainability through Electrified Aircraft Design: A Systems-Level Approach,” Special Session: Challenges and Opportunities for Aviation Electrification and ARPA-E ASCEND. IEEE Conversion Conference and Expo (ECCE), October 2023.

- S7. “Unlocking the Potential of Electrified Aircraft: Systems Thinking for Sustainable Aviation,” 12th Ankara International Aerospace Conference (AIAC’2023), *online*, September 2023.
- S6. “Aviation’s Grand Challenge: Disrupting technologies for an environmentally sustainable future,” Department of Aerospace Engineering, University of Illinois Urbana-Champaign, October 2022.
- S5. “Electrified Aircraft: A New Design Space For a More Sustainable Aviation,” University of Michigan Aerospace Engineering Department Seminar, February 2021.
- S4. “A Framework for Electrified Propulsion Architecture and Operation Analysis,” NATO AVT-RSY-323 Research Symposium on Hybrid/Electric Aero-Propulsion Systems for Military Applications, Trondheim, Norway, October 2019.
- S3. “Advancements in Multi-disciplinary Design Techniques for Electrified Aircraft,” IQPC More Electric Aircraft Conference, Seattle, USA, September 2019.
- S2. “Development and Performance Evaluation of Hybrid Electric Propulsion Subsystem Models using Pacelab SysArc,” PACEdays Annual Conference & User Group Meeting, Berlin, Germany, October 2016.
- S1. “A Methodology for Multidisciplinary Sizing and Optimization of Unmanned Aerial Vehicles and Their Subsystems,” PACEdays Annual Conference & User Group Meeting, Berlin, Germany, September 2015.

ACADEMIC RESEARCH SUPERVISION

Postdoctoral Fellows

- 1. Dr. Swapnil Jagtap, University of Michigan, 10/2023 - 10/2024
- 2. Dr. Mingxuan Shi, Georgia Institute of Technology, 08/2021 - 01/2022

PhD Academic Advisor

- 1. Emma Smith, 2029, *Fleet-Level and Multi-Mission Co-Optimization Framework for Hybrid Electric Aircraft*.
- 2. Carolyn Miranda Stockhausen, 2029, *Hybrid Turboelectric Distributed Propulsion Systems for Sustainable Aircraft: Design, analysis, and system-level optimization*.
- 3. Yi-Chih Wang, 2028, *Design and Optimization of Hybrid Electric Aircraft with Integrated Hydrogen Fuel Cell and Battery Power Management*.
- 4. Nattanan Wongprapinkul, 2028, *Environmental impacts modeling of space rocket operations*, co-advised with Prof. Oliver Jia-Richards.
- 5. Maxfield Arnson, 2027, *Integrated Physics-Based and Data-Driven Approaches for Modular Electrified Propulsion System Design*.
- 6. Paul Mokotoff, 2026, *Graph-Based System Architecture Design and Optimization for Future Sustainable Aviation Concepts*.

Ph.D. Thesis Committee Member

- 1. Eytan Adler, *Hydrogen-Powered Aircraft Design Optimization*. University of Michigan. November 2024.
- 2. Mohamed Arshath Saja Abdul Kaiyoom, *Numerical Methods for Coupled Aeropropulsive Design Optimization*. University of Michigan. November 2024.
- 3. Shugo Kaneko, *Multidisciplinary Design Optimization of Delivery Uncrewed Aerial Vehicles Considering Operations*. University of Michigan. April 2024.

4. Piper Sigrest, *Novel Whiffing-Inspired Gapped Wings as Control Surfaces*. University of Michigan. April 2023.
5. Yu Cai, *Multi-mission Sizing and Analysis Framework for Aircraft and Subsystem Architectures with Electrified Propulsion Systems in Conceptual Design*. Georgia Institute of Technology. April 2023.
6. Joshua Anibal, *Aerodynamic Shape Optimization of Heat Exchangers*. University of Michigan. December 2022.
7. Alexander A. Markov, *A Framework for Integrating Advanced Air Mobility Vehicle Development, Safety and Certification*. Georgia Institute of Technology. April 2022.

M.Sc. Students Advised

University of Michigan

1. Yipeng Liu, 2024–ongoing, *Sequence-based operational analysis for hybrid electric aircraft fleets*
2. Yi-Chih Wang, 2023–2024, *Modeling and Simulation of High Temperature Proton Exchange Membrane Fuel Cells in Parallel Hybrid Electric Turboprop Aircraft with Multi Whale Optimization Algorithms*.
3. Alexandra Strehlow, 2023–2024, *Model-based systems engineering for a systematic design of aircraft engine inlet*
4. Huseyin Acar, 2022–2024, *Life-cycle assessments of future technologies for sustainable aviation*
5. Yilin Deng, 2022–2024, *Hybrid Electric Aircraft Sizing and Operational Analyses for the Regional Market*
6. Michael Tsai, 2022–2023, *Electrified Aircraft Propulsion Modeling and Analysis*
7. Kriti Rath, 2022–2023, *Sustainable aviation: A review of opportunities and challenges*
8. Aidan Clawson, 2022–2023, *Sustainable aviation: A review of opportunities and challenges*
9. Alexander Kryuchkov, 2022–2023, *Battery modeling for hybrid electric aircraft*

Georgia Institute of Technology

1. Chrysoula Lydia Pastra, 2021, *Fuel burn benefit exploration of hydrogen fuel cell, hybrid electric and hydrogen fuel cell & battery hybrid configurations on a regional turboprop aircraft*
2. Ezgi Balkas, 2021, *Short takeoff and landing analysis of distributed electric aircraft in the thin haul market*
3. Mitchell Sanders, 2021, *Battery Energy Management for a Hybrid-electric Aircraft as a Partially Observable Markov Decision Process*
4. Andrew Van Zwieten, 2019, *Transient Surrogate Modeling for Thermal Management Systems*

Undergraduate Students Advised at University of Michigan

1. Ian Kim, 2024–ongoing, *Solid oxide fuel cell polarization curve modeling and analysis*.
2. Lauren Abravanel, 2024–ongoing, *Solid oxide fuel cell reformer modeling and analysis*.
3. Marcellin Barbeau, 2024–ongoing, *Model-based systems engineering for novel aircraft propulsion systems*.
4. Cristina Erskine, 2024–ongoing, *Acoustical Impacts of Rocket Launches* (Summer Undergraduate Research in Engineering program) and *Cloud Formation due to Rocket Launches* (co-advised with Prof. Oliver Jia-Richards).

5. Naol Gina, 2024, *Hydrogen fuel cell modeling* (Summer Undergraduate Research in Engineering program).
6. Neha Dwibhashyam, 2024, *Aircraft historical database creation* (Summer Undergraduate Research in Engineering program).
7. Rawan Aljaber, 2023–2024, *Data collection and analysis for aircraft and turbofan engines*.
8. Maria Reitz, 2023–2024, *Model-based systems engineering for a systematic design of aircraft engine inlet*.
9. Joaquin Rey, 2023–2024, *Data collection for historical aircraft and engine database*.
10. Jayda Shine, 2023–2023, *Data collection and analysis for aircraft and turbofan engines* (Summer Undergraduate Research in Engineering program).
11. Nawa Khailany, 2022–2024, *Aircraft Geometry and Propulsion Architecture Visualization for the Future Aircraft Sizing Tool*.
12. Janki Patel, 2022–2023, *Electrified Aircraft Propulsion Modeling and Analysis*.
13. Santiago Garcia Lavanchy, 2022–2023, *Operational Analyses for Hybrid Electric Aircraft*.

PROFESSIONAL SERVICE

Society Memberships

- American Institute of Aeronautics and Astronautics (AIAA), **Senior Member**, 2023–Present. **Member** 2012–2023.
- Institute of Electrical and Electronic Engineers (IEEE), **Member**, 2023–Present.

Technical Activities

- AIAA Electrified Aircraft Technology Technical Committee **Chair**, 2023–Present. **Vice Chair**, 2022–2023; **Publications and Policy Subcommittee Chair**, 2020–2022.
- AIAA/IEEE Electric Aircraft Technologies Symposium (EATS) **Chair** 2023–2024. **General Co-chair** 2022–2023. **Technical Program Co-chair**, 2019–2021.
- Member, AIAA Aviation Forum Guiding Coalition, 2023–Present.
- Member, AIAA Sustainability Working Group, 2023–Present.
- Member, AIAA Carbon Emissions and Sustainability Task Force, 2022–2023.
- Member, AIAA Aircraft Electrified Propulsion and Power Working Group, 2019–2020.
- Member, AIAA Energy Optimized Systems Integration Committee, 2018–2020.
- Panel Organizer & Moderator, Electrified Flight Development Programs at AIAA/IEEE EATS, 2020
- Session Chair, AIAA/IEEE EATS, 2019–2023. AIAA SciTech, 2023–2025.

Reviewing Activities

- National Science Foundation (NSF) review panel, March 2022.
- Local Judge for NASA International Space Apps Challenge, 2020 and 2021.
- Peer Reviewer for Journal of Aircraft, Aircraft Engineering and Aerospace Technology, Aeronautical Journal, Energy Conversion and Management, Environmental Science and Technology, AIAA Aviation Forum, AIAA SciTech Forum, AIAA/IEEE Electric Aircraft Technologies Symposium.

Academic Service at University of Michigan

- Michigan Initiative for Sustainable Aviation (MISA) 2023–Present
- Member, Honors and Awards Committee, 2023–Present.
- Faculty Advisor, M-FLY and Women in Aeronautics and Astronautics, 2023–Present
- Member, Engineering Faculty Library Advisory Committee, 2023–Present
- Member, Internal Review Committee (Aerospace Engineering), 2023–2024