Mina Cezairli

Doctoral Student at MIT

Massachusetts Institute of Technology, 125 Massachusetts Ave, Cambridge, MA 02139

cezairli@mit.edu | https://www.linkedin.com/in/mina-cezairli/

Education

Massachusetts Institute of Technology — *Cambridge, MA*

PhD Aeronautics and Astronautics (GPA: 5.0/5.0) — *Expected Graduation 2028*

- Advisor: R. John Hansman

Massachusetts Institute of Technology — *Cambridge, MA*

SM Aeronautics and Astronautics (GPA: 5.0/5.0) — *2025*

- Thesis: Feasibility Analysis and Fuel Burn Benefits of Relaxing Constraints in High Altitude Cruise (Advisor: R. John Hansman)
- Advisor: R. John Hansman

Yale University — *New Haven, CT*

BS Mechanical Engineering (GPA: 3.7/4.0, Major GPA: 3.7/4.0) — *2021*

Honors and Awards

20 Twenties Winner *Aviation Week Network* 2026

DASC Best Paper Award *"Preliminary Risk Analysis and Fuel Benefits of High-Altitude Free Fight Regions"* 2025

25 Most Successful Turkish Graduates in the U.S. *Study in America* 2021

All-Academic Hall of Fame *Inter-Collegiate Sailing Association* 2021

Brooke Owens Fellowship Finalist 2020

Yale College First-Year Summer Research Fellowship *$4,300 Summer Research Grant* 2018

Research Experience

MIT International Center for Air Transportation — *Cambridge, MA*

PI: R. John Hansman — *September 2023–Present*

- Evaluate the fuel efficiency of the global air transportation system using trajectory data and investigate fuel saving opportunities in ATC
- Calculate the noise reduction of new procedures at Boston Airport and analyze usage of advanced PBN procedures using flight trajectory and noise data
- Analyzed safety report narratives within the ASRS and NTSB databases to identify human performance issues using Natural Language Processing (NLP) methods

MIT Space Propulsion Laboratory — *Cambridge, MA*

PI: Paulo Lozano — *Jun 2019–Aug 2019*

- Researched the non-steady performance of ion thrusters for in-space CubeSat missions on a NASA-funded project
- Conducted and analyzed data from over 100 Time of Flight tests to characterize emitted particles as a result of transition state firing in a vacuum chamber and supported the failure analysis

Yale Electrospray Laboratory — *New Haven, CT*

PI: Juan de la Mora — *May 2018–August 2018*

- Researched ion evaporation, a phenomenon that affects electrospray propulsion, by characterizing the composition of ions produced by electrospray ionization and co-authored a paper in the Journal of Physical Chemistry A
- Designed a novel experimental setup to characterize the evaporated dimers and trimers with a fast measuring rate using the drift region of a Differential Mobility Analyzer (DMA)

Publications and Presentations

M. Cezairli, K. Cort, A. Eskenazi, B. Hadfield, M. Homola, S. Reider, V. Tran, M. Travnik, R. J. Hansman, "Preliminary Risk Analysis and Fuel Benefits of High-Altitude Free Fight Regions", 44th Digital Avionics Systems Conference, September 14-18, 2025. (*Best of Session*)

M. Cezairli, S. Salgueiro and R. J. Hansman. "Implementation Analysis of Low-Noise Performance-Based Navigation Flight Procedures at Boston Logan Airport," Journal of Air Transportation, March 2025.

C. Perez Gago, **M. Cezairli**, and R. J. Hansman. "Exploration of NLP Methods for Injury Prediction in Aviation Safety Narrative Data," AIAA 2025-1915, AIAA SCITECH 2025 Forum, January 2025.

M. Cezairli, S. Salgueiro and R. J. Hansman. "Analysis of the Implementation of Low-Noise PBN Flight Procedures at Boston Logan Airport," AIAA 2024-3856, AIAA AVIATION FORUM AND ASCEND 2024, July 2024.

J. F. de la Mora, M. Genoni, L. J. Perez-Lorenzo, and **M. Cezairli**, "Measuring the kinetics of neutral pair evaporation from cluster ions of ionic liquid in the drift region of a differential mobility analyzer," The Journal of Physical Chemistry A, vol. 124, no. 12, pp. 2483–2496, Feb. 2020.

E. M. Petro, **M. Cezairli**, M. Schroeder, P. C. Lozano "Investigation of Electrospray Plume Composition during Voltage Transients," presented at the 36th International Electric Propulsion Conference, Vienna, Austria, September 15-20, 2019, 794.

Work Experience

Data Science Intern *Auckland, New Zealand*

Air New Zealand *Jun 2025–Aug 2025*

- Built data models for an integrated planning decision support tool to help flight planners make data-driven decisions and schedules that are robust to disruptions
- Trained a Bayesian Neural Network model to predict the maintenance occurrence and delays for flights at a variety of airports
- Analyzed delay reason data from airports within the Air New Zealand network to identify likely delay reasons and predict airport delays

Analyst *New York, NY*

Cornerstone Research *Aug 2021–Jul 2023*

- Applied statistical analyses in R, Matlab, and SQL to support expert testimony in a wide range of high-stakes commercial litigation and pro bono matters and mentored consultants executing analyses under urgent deadlines
- Led and collaborated with teams to communicate complex analyses to internal and external stakeholders to prepare for deposition and trial testimony for Fortune 500 clients
- Analyzed multiple terabytes of app use data to evaluate alleged anticompetitive conduct in a widely publicized lawsuit in the tech industry

Spacecraft Engineering Intern *Pasadena, CA*

NASA Jet Propulsion Laboratory *Jun 2020–Aug 2020*

- Verified the feasibility of a Venus satellite mission concept as determined by statistical simulations by researching the atmospheric parameters of the Venusian atmosphere
- Evaluated progress towards the project scientific goals by synthesizing more than 15,000 orbital data files
- Aligned the scientific engineering functions of the project through weekly data analysis presentations to the chief scientist and the team

Teaching Experience

S&DS 230: Data Exploration and Analysis *Yale University*

Undergraduate Learning Assistant *Spring 2021*

MENG 383: Dynamics *Yale University*

Undergraduate Learning Assistant *Fall 2020*

TKSH 110 – 150: Elementary, Intermediate, and Advanced Modern Turkish *Yale University*

Language Tutor *Fall 2018–Spring 2019*

Accelerated Mechanics *Kadir Has University*

Teaching Assistant *Summer 2017*

Service and Mentoring

Graduate Application Assistance Program *Fall 2023–Present*

Co-Lead *MIT AeroAstro*

- Currently leading and served as a mentor in a program students applying to AeroAstro, helping them assemble their applications and convey their narratives in the application essays

Graduate Association of Aeronautics and Astronautics *Spring 2024–Spring 2025*

International Chair *MIT AeroAstro*

- Help international students navigate the unique challenges studying and obtaining practical training in the United States and connect them with resources within the school

Yale Mechanical Engineering *Fall 2019–Spring 2020*

Peer Mentor *Yale University*

- Selected as one of five peer mentors from 40 Mechanical Engineering students to represent the department
- Mentored first-years and sophomores majoring in Mechanical Engineering and advised them on various topics including course selection, research, and academics

Skills

Programming	Python (Pandas, TensorFlow, PyTorch, NumPy, Scikit-learn), R (dplyr, ggplot2), SQL, Matlab, SolidWorks
Miscellaneous	Flying (Certified Pilot in Single Engine Land), Machine Learning, ArcGIS, LaTeX(Overleaf/R Markdown), Git
Soft Skills	Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation
Languages	English, Turkish (Native), French (Limited Working Proficiency)