Cristiano M. Cabrera

EI, CFEI

Staff Consultant

Cristiano Cabrera is a mechanical engineer with expertise in passive flow control, supersonic flow testing, and microscale manufacturing. He is an Engineer Intern in the state of Florida. At ESi, he works in the area of thermal science, fire, and explosion investigation out of the Miami, FL office.

Prior to joining ESi, Cristiano was a graduate research assistant and teaching assistant at Purdue University. His thesis focused on the application of bio-inspired surface coatings in supersonic flow control applications as well as comparison of micro-mesoscale manufacturing methods for fabricating bio-inspired surface coatings. As a teaching assistant, he worked with students on sophomore design projects involving research into existing designs and industry standards to develop safe and effective prototype products. He also assisted in the testing of projects and wrote lab manuals for a new Purdue University course curriculum that teaches students more hands-on fabrication skills.

Education

M.S., Mechanical Engineering. Purdue University. 2025

B.S., Mechanical Engineering (Cum Laude). Southern Illinois University Edwardsville. 2022

A.E.S., General Engineering. Southwestern Illinois College. 2020

A.A.S., Computer Aided Design. Southwestern Illinois College. 2020

Licenses & Certifications

Engineer Intern (EI), State of Florida,
Certification No. 1100030924

Certified Fire and Explosion Investigator (CFEI),
Certification No. 30964

American Design Drafter Association, Certified Mechanical Drafter, 2019

Contact Information

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Areas of Specialization

- Thermal Sciences
- Fire & Explosion Investigations
- Fuel Gas Incidents
- Fluid Mechanics
- Supersonic Flow
- Micro-scale Manufacturing
- Welding
- Manual Machining
- Python Programming

Positions Held

Engineering Systems Inc., Miami, Florida

- Staff Consultant, 2025 – Present

Purdue University, School of Mechanical Engineering, West Lafayette, Indiana

- Graduate Research Assistant, 2024 – 2025
- Lead Lab Coordinator, 2023 – 2024
- Graduate Teaching Assistant, 2022 - 2023

Professional Affiliations/Honors

American Society of Mechanical Engineers (ASME)

National Fire Protection Association (NFPA)

Society of Fire Protection Engineers (SFPE)

Society of Hispanic Professional Engineers (SHPE)

Pi Tau Sigma, Engineering Honors Society

- Member

Publications

"Brain Tumor detection using Proper Orthogonal Decomposition integrated with Deep Learning Networks, Computer Methods and Programs in Biomedicine", R. Appiah, V. Pulletikurthi, H.A. Esquivel-Puentes, **C. Cabrera**, N. Hasan, S. Dharmarathne, L. Gomez, L. Castillo, Computer Methods and Programs in Biomedicine, Volume 250, (2024).

"Sustainable Aviation Fuel from *Sargassum*", N. Warner, A. Ramos, J. Reyes, Z. Jiménez, A. Claudio, A. Berrocal, K. Corrales, **C. Cabrera**, G. Gervais, C. Louime & L. Castillo, Energy and Coastal Security, Resilience, and Workforce Development, Volume 2, July 2026: 329-335.

"Framework for Estimation of CO2 Sequestration from Sargassum Using Remote Sensing and Neural Networks", A.A.C. Rosario, E. Fernández, N. Warner Flores, A. Berrocal, K. Corrales Aguirre, **C. Cabrera**, H. Janwa, C. Louime & L. Castillo, Energy and Coastal Security, Resilience, and Workforce Development, Volume 2, July 2026: 313-320.

"Biomimetic Surface Development and Supersonic Performance Analysis", **C. Cabrera**, S. Bane, L. Sotelo & L. Castillo, Energy and Coastal Security, Resilience, and Workforce Development, Volume 2, July 2026: 343-351.

Presentations

“Bio-Inspired Applications in the Reduction of Shock-Induced Boundary Layer Separation”, **Cristiano Cabrera**, Tanya Purwar, Zackary Van Zante, Sally Bane, Luz Sotelo, Luciano Castillo, presented at the 77th Annual Meeting of the Division of Fluid Dynamics, Salt Lake City, UT, November 24, 2024.

“Modeling Boundary Layer Separation Over Bio-Inspired Organized Surface Roughness Elements”, **Cristiano Cabrera**, Abigayle Moser, Antonio Esquivel-Puentes, Luz Sotelo, Luciano Castillo, presented at the 76th Annual Meeting of the Division of Fluid Dynamics, Washington, DC, November 20, 2023.