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Miami, FL, 33166

CRISTIANO CABRERA
STAFF CONSULTANT

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Cristiano Cabrera is a mechanical engineer with expertise in passive flow control, supersonic flow testing, and microscale manufacturing. 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.

Areas of Specialization

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

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

American Design Drafter Association ..... Certified Mechanical Drafter, 2019

Professional Affiliations/Honors

Pi Tau Sigma, Engineering Honors Society

Member

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

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

Lead Lab Coordinator, 2023-2024

Graduate Teaching Assistant, 2022 – 2023

Publications/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

"Brain Tumor detection using Proper Orthogonal Decomposition integrated with Deep Learning Networks, Computer Methods and Programs in Biomedicine", Rita Appiah, Venkatesh Pulletikurthi, Helber Antonio Esquivel-Puentes, **Cristiano Cabrera**, Nahian I Hasan, Suranga Dharmarathne, Luis J Gomez, Luciano Castillo, Computer Methods and Programs in Biomedicine, Volume 250, (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