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Cesar Rodriguez Saenz, Ph.D.

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Professional Profile

Dr. Cesar Rodriguez Saenz is an aerospace and mechanical engineer specializing in experimental and computational fluid dynamics, with a strong focus on unsteady, particle-laden flows.

His doctoral research at the University of Virginia, in collaboration with Rolls-Royce North America, involved the experimental and computational study of axisymmetric inertial particle separators for gas turbine engines, which resulted in multiple peer-reviewed publications and presentations at premier conferences such as American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress & Exposition and American Institute of Aeronautics and Astronautics (AIAA) Aviation. His technical expertise encompasses advanced Computational Fluid Dynamics (CFD) simulations, complex experimental techniques such as Particle Image Velocimetry (PIV), and engineering design. Dr. Rodriguez Saenz has diverse experience in academic and industry roles, having served as a consultant for companies like Honeywell Aerospace, and as a mechanical design engineer in automotive manufacturing. He is actively involved in professional organizations as a member of the AIAA Inlets, Nozzles, and Propulsion Integration Technical Committee and a peer reviewer for the Journal of Aerospace Engineering.

Academic Credentials & Professional Honors

Ph.D., Mechanical and Aerospace Engineering, University of Virginia, 2025

B.S., Mechanical Engineering, Universidad San Francisco de Quito, 2019

B.S., Mechanical Engineering, Texas A&M University, 2018

Mechanical and Aerospace Engineering Distinguished Fellow, University of Virginia, 2021–2025

Chairperson's Fellow, University of Virginia, 2021

Cum Laude Graduate, Universidad San Francisco de Quito, 2019

National Defense Scholarship, Republic of Ecuador, 2014–2019

Academic Appointments

Representative to the Graduate Studies Committee, School of Engineering and Applied Science, University of Virginia, 2022–2023

Representative to the Graduate Engineering Student Council, Department of Mechanical and Aerospace Engineering, University of Virginia, 2022–2023

Prior Experience

Rolls-Royce Doctoral Researcher, University of Virginia, 2021–2025

Consultant, Honeywell Aerospace Technologies, 2023–2025

Design Engineer, EGAR S.A. Frenos Automotrices, 2019–2021

Production Supervisor (Interim), EGAR S.A. Frenos Automotrices, 2020

Engineering Intern, EGAR S.A. Frenos Automotrices, 2018

Professional Affiliations

Member, American Institute of Aeronautics and Astronautics (AIAA), 2024

Member, Human Factors and Ergonomics Society (HFES), 2022

Member, American Society of Mechanical Engineers (ASME), 2018

Member, Society for the Advancement of Material and Process Engineering (SAMPE), 2018

Member, Material Advantage, 2015

Publications

Rodriguez-Saenz, C.R. and Loth, E., “Axisymmetric-Sector Inertial Particle Separator Efficiency,” Journal of Propulsion and Power, AIAA, Articles in Advance. DOI: https://doi.org/10.2514/1.B39881.

Rodriguez-Saenz, C.R. and Loth, E., "Experimental Characterization of an Axisymmetric-Sector Inertial Particle Separator Wind Tunnel," Aerospace Science and Technology, vol. 163. Elsevier BV, p. 110281, Aug. 2025. doi: 10.1016/j.ast.2025.110281.

Presentations

Rodriguez-Saenz, C.R. and Loth, E., "Large Eddy Simulation with Lagrangian Particle Tracking of an Inertial Particle Separator," in 2025 AIAA Aviation Forum, Las Vegas, Nevada, USA, Jul 2025. DOI: https://doi.org/10.2514/6.2025-3860.

Rodriguez-Saenz, C.R., Ritchie, S., and Loth, E., "Experimental Particle Separation Efficiency for an Axisymmetric-Sector Inertial Particle Separator," in 2025 AIAA Aviation Forum, Las Vegas, Nevada, USA, Jul 2025. DOI: https://doi.org/10.2514/6.2025-3542.

Rodriguez-Saenz, C.R., Loth, E., and Smith, C.F., "Development and Aerodynamic Performance of an Axisymmetric-Sector Inertial Particle Separator Wind Tunnel," in Proceedings of the ASME 2023 International Mechanical Engineering Congress and Exposition, New Orleans, Louisiana, USA, Nov 2023. DOI: https://doi.org/10.1115/IMECE2023-111752.

Advisory Appointments

Member, Inlets, Nozzles, and Propulsion System Integration (INSPI) Technical Committee, American Institute of Aeronautics and Astronautics (AIAA), 2025

Peer Reviews

Journal of Aerospace Engineering (American Society of Civil Engineers)