DIEGO ALEJANDRO CEPEDA CUARTAS

(+57) 311-822-0327 • dacepedac1@gmail.com •
https://www.linkedin.com/in/diego-alejandro-cepeda-cuartas-3757381a5/ • Bogota D.C., Colombia

SUMMARY

I am an Aeronautical Engineer graduated from Universidad San Buenaventura in Colombia, with knowledge about aircraft maintenance production control and planning and, aircraft parts design. I have a passion for the analysis of complex problems and identifying viable solutions. I am commonly described as a disciplined, dedicated, organized, and creative thinker with a proven track record as a team member or leader. My areas of particular interest include fluid physics, structure, thermodynamics and computational systems.

EDUCATION

B.Sc., Aeronautical Engineer Graduating April 2023
Universidad de San Buenaventura, Bogota, Colombia 4.115 / 5.0 GPA

Relevant coursework: Fluid Mechanics, Aircraft Design, Aerodynamics Simulations, Control Systems, Computation Systems, Mathematical Skills, Thermodynamics, Transport Phenomena
Thesis: Study of the state of the art of virtual reality applications applied in the aerospace sector

Post-graduate program in External Aerodynamic Simulations Graduating April 2024
Skill-Lync, India

Relevant coursework: Fluid Mechanics, Computation Skills, Analysis and Simulation of Partial Differential Equations, Turbo-machinery
Thesis: Broadband Noise modelling over Ahmed body

Profesional program in Artificial Intelligence and Machine Learning Graduating September 2024
Massachusetts Institute of Technology, USA 93.83 / 100 GPA

Relevant coursework: Machine Learning, Deep Learning, Python, Numpy, Pandas, TensorFlow, Keras, Generative AI, AI on Cloud, Statistic skills, Prediction Models
Thesis: Amazon Recommendation System

TECHNICAL SKILLS

CFD Solvers: ANSYS Fluent, ANSYS CFX, OpenFOAM, CONVERGE
Meshing Tools: Fluent Mesher, ICEMCFD, GridPro, ANSA
Programming: Python, C, C++, Matlab, JavaScript, HTLM5, CSS3, React
CAD Tools: ANSYS VISTA, SolidEdge, Spaceclaim, CATIA V5, Autodesk Inventor, NX CAD
Certifications:

- Complete Python Bootcamp from Zero to Hero in Python Certificate, Udemy Feb 2022 (Certificate no. UC-05bde33b-0457-4a38-bb8c-af3e763ffc43)
- Aerospace Masterclass: Aircraft Design Certificate, Udemy Feb 2022 (Certificate no. UC-e1067295-3843-4bc0-8fb5-27f73be09fae)
- Professional Operator of Inventor Software Certificate, Autodesk Jan 2023 (Certificate no. wEJ2T-4S6F)
- Programming and Codification in Python, Samsung Apr 2023 (Certificate no. M916)
- Introduction to Artificial Intelligence, Samsung Jun 2023 (Certificate no. N170)
- Introduction to CFD using MATLAB and OpenFOAM, Skill-Lync May 2023 (Certificate no. leb7m23ky91fhdx0)
- Introduction to GUI-based CFD using ANSYS Fluent, Skill-Lync Nov 2023 (Certificate no. la7uqdhe9wzbog0s)
- Advanced CFD Meshing Using ANSA, Skill-Lync Dec 2023 (Certificate no. izlyrxn6ufamv8q0)
- Introduction to Aero-Thermal Simulation Using ANSYS Fluent, Skill-Lync Feb 2024 (Certificate no. af1jipq3sw0vy6hn)
- Advanced Aerodynamic Simulations Using CONVERGE, Skill-Lync Apr 2024 (Certificate no. ujlfzndharmiybxc)
- Post-Graduate Program in External Aerodynamic Simulations, Skill-Lync Apr 2024 (Certificate no. elgb3fp4xv0uqczi)
- MATLAB for Mechanical Engineers, Flowthermolab Feb 2024 (Certificate no. d1c1058)

- Scientific Computing with Python, Flowthermolab Feb 2024 (Certificate no. 2a25240)
- CFD Foundation course, Flowthermolab Mar 2024 (Certificate no. 8f2c167)
- ANSYS Fluent Beginners to Advanced Level, Flowthermolab Apr 2024 (Certificate no. dad50a2)
- OpenFOAM For Beginners, Flowthermolab Jun 2024 (Certificate no. 27a4ef1)
- Design and CFD of Turbomachines, Flowthermolab Jul 2024 (Certificate no. c11c45d)
- CFD Mentorship program, Flowthermolab Sep 2024 (Certificate no. 68b2d51)
- Introduction to Artificial Intelligence on Cloud, Great Learning Sep 2024 (Certificate no. HW6J9RA0KB)
- DATA SCIENCE AND MACHINE LEARNING: MAKING DATA-DRIVEN DECISIONS, Massachusetts Institute of Technology Sep 2024 (Certificate no. ZTFBWZCR)
- Internship Project Certificate, Flowthermolab Sep 2024 (Certificate no. d0aec84)

PROFESSIONAL EXPERIENCE

Colombian Air Force, Colombia: Aeronautical Engineer - Bachelor Internship March 2022 – Sept 2022

- Aircraft parts simulation and testing in critical environments (Solid Edge, Excel, ANSYS Fluent)
- Support on a hangar for environmental testing for aircraft products project (Word, Excel, CATIA V5, Solid Edge)
- Aiming on the scrap of an aircraft Piper PA-31 (Technical skills)

Lineas Aereas Suramericanas, Colombia: Production Control Engineer Sept 2022 – March 2023

- Supervision and handling of the 2C maintenance of a Boeing 737-200 belonging to LAS Company (Excel, Alkym 7)
- Support and accompaniment of the aeronautical technic staff through the months that the maintenance lasted (Technical Skills)

Verpacken S.A.S, Colombia: Project Engineer & Design Engineer March 2023 – Oct 2023

- Design and support in the manufacturing of industrial machines like belt conveyors, thermoforming machines, and spiral conveyors (Autodesk Inventor, Python, ANSYS Fluent, Physics skills)
- Optimization of different industrial processes in different Colombian companies (Technical skills)

ACADEMIC PROJECTS

Stirling Engine Construction Project 4th Semester of B.Sc. Aeronautical Engineering

Collaborated in a team of three to model and construct a Stirling Engine model to switch on a LED (CATIA V5, Thermodynamics, Structure Analysis).

- Developed team paper (Microsoft Word)
- Recognized by faculty audience as “Best Presentation” out of 10 teams, including this project to the "Engineering Day"

CargoPod design project for CESSNA 210 Aircraft for Structural Aircraft Design 6th Semester of B.Sc. Aeronautical Engineering

Led team of seven to design and develop a cargo pod that allowed to increase the fuel compartment in a CESSNA 210, used to train pilots.

- Structure stress calculation and cargo pod CAD model (MATLAB, CATIA V5, Structure Analysis)
- Updating of the aircraft design parameters, operation manual, and maintenance manual (FAA regulations knowledge, Word)

Software project for chamber combustion- nozzle solid propellant rocket design 7th Semester of B.Sc. Aeronautical Engineering

Led team of three to design and develop a software that allowed to generate a theoretical geometry of a rocket, according to the parameters entered by the user.

- Development of a program with a dynamic interface (MATLAB App Designer)
- Modeling of a rocket prototype by intertwining the program with CAD software (Excel, Autodesk Inventor)

Research assistant of the CatJet Engine thrust analysis Project 5th semester to 9th semester of B.Sc. Aeronautical Engineering

Seed-bed team of students to test and analyze the thrust of a CatJet Engine.

- Development of a test bench for the engine (Technical Skills)

- Programming of a thrust sensor (Arduine)

CFD PROJECTS

SIMPLE Algorithm program for solving the Navier -Stokes Equations March 2024 - April 2024

A project developed to simulate a 1D steady-state flow behavior into a convergent nozzle (MATLAB).

- Programming one section of the SIMPLE Algorithm to solve the required 1D geometry with different cross-sectional areas (MATLAB)

Ahmed body lift and drag force simulation September 2023 - October 2023

Modeling and simulation of a standard Ahmed Body to get the drag and lift coefficients, regarding the wake angle is varied (ANSYS Fluent).

- Model the Ahmed Body and simulate it using the wall functions and the wake angle variation (ANSYS Fluent)

CHT Analysis on a Graphics card November 2023

Modeling and simulation of a theoretical graphic card to get the thermal management that this one could require(ANSYS Fluent, Thermodynamics, Heat Transfer).

- Model the theoretical graphic card and simulate it using the heat flux functions (ANSYS Fluent)

NACA 0012 Airfoil Simulation January 2024

Meshing and simulation of the NACA 0012 at incompressible and compressible air conditions (ANSYS Fluent, Thermodynamics, ICEM CFD).

- Update the NACA 0012 points, mesh the airfoil for incompressible and compressible conditions, and simulate it using the pressure-based solver and the density-based solver (ICEM CFD, ANSYS Fluent).

CFD modeling of vertical axis wind turbine and experimental validation January 2024 - June 2024

Meshing and simulation of a VAWT, in order to get a benchmarking comparison and propose an improvement of the VAWT model (ANSYS Fluent, Thermodynamics, ANSYS SpaceClaim).

- Develop a 3D model of VAWT according to different parameters shown in different papers, simulate the VAWT design, and obtain the required coefficients to check the VAWT performance.

PUBLICATIONS

- Modeling and Demonstration of Stirling Engine Working
- Study of the state of the art of virtual reality applications applied in the aerospace sector

LANGUAGES

- English - B2 (IELTS Certificate)
- Spanish - Native language
- French - B1
- German - A2

REFERENCES

Engr. Nicolas Vargas Lesmes
#Aeronautical Engineer, # ESLAE Lab, # Colombian Airforce, # Colombia
E-mail: NICOLAS.VARGAS@FAC.MIL.CO

Capt. Bayron Steve Ruiz Niño
#Captain, # ESLAE Lab, # Colombian Air Force, # Colombia
E-mail: BAYRON.RUIZ@FAC.MIL.CO

Engr. Ruben Dario Hernandez Sierra
#Aircraft Operations and Maintenance Chief, # LAS Production and Maintenance Team, # Lineas Aereas Suramericanas, # Colombia
E-mail: RUBEN.HERNANDEZ@LASCARGO.COM

Engr. Celso Augusto Rodríguez Parra
 # CEO & Engineering Chief, # Engineering and Manufacturing Team, # Verpacken S.A.S, # Colombia
E-mail: TECNICAVERPACKEN@GMAIL.COM

Engr. Henry Andres Porras Perucho
#Academic Director, # Aeronautical Engineering Program, # Universidad San Buenaventura, # Colombia
E-mail: HENRYANDRESPORRASPERUCHO@HOTMAIL.COM

Dr. Sandeep Mouvanal
#Founder and CEO, # Flowthermolab, # UK
E-mail: SANDEEP@FLOWTHERMOLAB.COM