Corrado Ruperto Mazzarelli

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Studies

Georgia Institute of Technology, Atlanta, Georgia — Aug. 2021-May 2024
Master of Science, Aerospace Engineering — **4.0/4.0 GPA**

Rensselaer Polytechnic Institute, Troy, New York — Sept. 2018-May 2021
Bachelor of Science, Aeronautical Engineering and Mechanical Engineering — **4.0/4.0 GPA**

Professional Experience

Combustion Aero Design Engineer — *GE Vernova* — 2023 – P
- Own the aero design (flow distribution, fuel/air mixing, emissions) for part of a novel 100% H2 combustor
- Lead developer for team, creating Python tools to streamline workflow – see Projects & Leadership section
- Work cross functionally with mechanical designers and additive manufacturing team. Design for additive
- Oversee full-day, several hundred thousand dollar tests to map combustor performance and operability

Edison Engineering Development Program — *GE Vernova* — 2021 – 2023
- A four, six-month rotation engineering development program with leadership and business training

Aerothermal Engineer — *Combustion Aerothermal Design Team* — Jul. 2022-Jan 2023
- Analyzed and optimized combustion hardware cooling hole geometry utilizing computational fluid dynamics
- Combined Python, Siemens NX, and Ansys Workbench/Fluent software to automate CFD analysis
- Informed mechanical design team and pushed parts to customer unit, design currently in field testing

Test Engineer — *Mechanical Test Lab* — Jan 2022-Jun. 2022
- Designed and conducted mechanical part tests, such as strain tests, leak tests, fatigue tests, etc.
- Cut bolt friction factor fixture costs by over 50%, saving $3,500 in material; also coordinated with suppliers
- Developed in-house Python crack recognition software providing $50,000 in equivalent value
- Developed and optimized Python FFT tool to categorize hundreds of millions of rows of lab data

Skills

- Strong parametric CAD modeling skills in Siemens NX with automation capability
- Experience in Ansys Workbench Meshing, some Ansys Classic, Fluent for CFD, & NX Nastran FEA
- Highly proficient in Python and Excel/VBA for task automation, data analysis, visualization
- Working experience in machine learning methods for engineers; familiarity with Git version control
- Basic working proficiency in Spanish and Italian

Projects & Leadership

GE — Combustion GitHub Organization: *Software Library Development* — 2023 - P
- Created the Combustion GitHub organization to allow for inter & cross team collaboration
- Pycasso: a Python library used to identify temperatures from lab images of temp. sensitive paint
- Pyromancy: a Python library built on Polars, Plotly, Pandas, Scikit-Learn, used to create interactive plots of full day combustion lab test data, process the data with ML clustering methods, and reduce post-test analysis time by 40% compared to the team's previous workflow in Excel

GE — Monte Python: *Python Library for the Clearances Team* — 2023
- Cut runtime 100x by rewriting an Excel Monte Carlo tool modeling Gas Turbine clearances, in Python

GA Tech — Third-Order Euler Equation Finite Volume Solver: *Python & Rust* — 2023
- Wrote a CFD simulation in Python using Numba for JIT compilation, then rewrote in Rust for speed

Personal — DJ Playlist Analyzer: *Python using Scipy, Spotipy, Matplotlib* — 2023
- A Python tool to fit a playlist to a given BPM profile, minimizing error with the Hungarian algorithm

Early Career Mentor: *GE Vernova* — 2023 - P
- Helped with development of new 'Edisons' at GE, mentoring them and guiding them through tasks
- Led a project with a new Edison engineer to give her experience in Aero design software and tools

Classes Awards

GA Tech: Advanced Design Methods, CFD, Machine Learning and AI, Statistics, Robotics – Individual Study: Data Driven Engineering
GE Vernova: Above and Beyond Award 2023, Deliver with Focus Recognition Award 2022