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
- Lead developer for Python tools to automate data collection/analysis for novel H2 combustor research and design
- Led full-day, $100K+ combustor performance tests and developed Python tools for time series analysis of millions of data points, previously unmanageable in Excel
- Pioneered new capability by developing a Python library to combine video compilation and data plotting for tests
- Developed infrared camera data post-processing script, reducing touch time from 5hrs/test to seconds

Lead Developer — *Greenville Westies* — 2024 – P
- **Dancexam –** Built a containerized web application in Rust (Axum, Askama, HTMX) with a CI/CD pipeline (GitHub Actions, Docker), for grading dancers – prioritized scalability/flexibility for adoption by other communities
- **DJ Assistant –** Created a Python web app using Flask, Jinja, Nginx, and SQLite to rearrange playlists for DJs, reducing weekly preparation time by 70% [Both of these applications are accessible via corradomazzarelli.com]

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, creating a workflow (and library) to run and post-process 50 CFD cases with limited human intervention enabling rapid design

Test Engineer — *Mechanical Test Lab* — Jan 2022-Jun. 2022
- Developed Python software using OpenCV for crack image recognition providing $50,000 in equivalent value
- Developed and optimized Python FFT tool using Polars to categorize hundreds of millions of rows of lab data

Skills

- **Programming Languages:** Python, Rust, SQL, VBA, HTML
- **Frameworks/Tools:** Flask, Docker, Jinja, Git, OpenCV, Polars, Pandas, Askama, Axum, Plotly, Sklearn, Tensorflow, PostgreSQL, SQLite
- **Data Science/ML:** Scikit-Learn, Tensorflow, DBScan clustering, PCA dimensionality reduction
- **Languages:** 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
- **Pyromancy:** Developed a Python library built on Polars, Plotly, Pandas, Scikit-Learn, enable new team functionality in handling large datasets and reduce prior data processing workflow time by more than 40%

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; rewrote in Rust for additional speed

GE — Python Boot Camp Architect/Professor — 2023 - P
- Developed curriculum from scratch and taught 4hr/day, 5-day course to 60+ new GE employees
- Emphasized sound coding principles, instilling Separation of Concerns, DRY, AHA, into blossoming developers

Classes Awards

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