Anuranan Bharadwaj

Email: bharada3@my.erau.edu, **Cell:** +1 (215) 397 – 5806
LinkedIn: linkedin.com/in/anuranan-bharadwaj **| Portfolio:** https://anuranan.info/
GitHub: https://github.com/anuranan10

EDUCATION

Embry-Riddle Aeronautical University — Daytona Beach, FL
Bachelor of Science in Aerospace Engineering - Jet Propulsion — **May 2026**
Minor in Computer Science — **GPA: 3.9**

EXPERIENCE

Undergraduate Research Assistant | *Turbine Aerodynamics, Experimental Rig, Testing* — **May 2025 - Present**
Gas Turbine Lab – Embry-Riddle Aeronautical University — *Daytona Beach, FL*

- Designed a **reusable Excel tool** to calculate **turbine blade throat openings** and **deviation angles** using **Aungier's empirical correlations**, **velocity triangles**, and **Mach-dependent flow** behavior.
- Automated **gauging angle** and **blade spacing** analysis across **multi-stage turbine configurations** to support **design iteration** and **airflow characterization**.
- Assisting in the **redesign** and **instrumentation upgrade** of a **linear turbine cascade rig**, including planned modifications to **pitot probes**, **inlet geometry**, and **drive fan systems**.

C&DH Software Developer | *NASA cFS, C, Python, Ubuntu, Git* — **March 2025 - Present**
Project COMET – Embry-Riddle Aeronautical University — *Daytona Beach, FL*

- Developing flight software for a **12U CubeSat** mission demonstrating **mmWave inter-satellite communication** as part of an initiative to support future **scalable**, **low-latency space networks**.
- Building **modular applications** in **NASA's core Flight System** (**cFS**) on **Ubuntu** to control **subsystem operations**, automate **fault recovery**, and manage **spacecraft modes**.
- Competing for a **NASA-funded** launch under the **University Nanosatellite Program** (**UNP**), contributing to a **500+ Mbps** autonomous satellite communication system.

Systems Engineering Intern | *Java, Git, SQL, Data Integration, Agile* — **July – August 2024**
ABH Software — *Assam, India*

- Contributed to the development of a **modular business operations platform**, focusing on **systems architecture and process integration** for inventory control and customer workflow management.
- Engineered **automated data reporting pipelines** using **SQL** and **Java** to simulate real-time telemetry and logistics tracking systems, **reducing manual report processing by 30%** and **improving accuracy by 20%**.
- Collaborated cross-functionally to build **Java-based features** that streamlined processes using **Agile methodologies**.

PROJECTS

Aircraft Stability & Control Simulation | *MATLAB, DATCOM, Simulink, FlightGear, Excel* — **April 2025**

- Modeled a subsonic aircraft using **DATCOM** and **stability derivatives**, ensuring adherence to **lateral**, **longitudinal**, and **directional static stability** requirements.
- Developed a closed-loop flight simulation in **Simulink** and integrated with **FlightGear for 6-DOF visualization**.
- Validated **simulation accuracy with <3.5% deviation** from theoretical models, confirming static stability across.

Aircraft Wing Structural Analysis| *FEMAP, NX Nastran, Fusion 360* — **December 2024**

- Designed and modeled **a detailed wing structure** using **Fusion 360**, incorporating spars, ribs, stringers, and skin.
- Performed **finite element analysis** (FEA)in **FEMAP** with **NX Nastran** to evaluate stress, deflection, and load distribution under aerodynamic forces.
- Validated **mesh quality** (*Jacobian > 0.6*) and **maximum displacement of 0.15 in**, confirming structural efficiency.

SKILLS

Engineering Software: CATIA| FEMAP| NX Nastran| MATLAB| Fusion 360| Java| Python| HTML| CSS| JS| C#
Developer Tools: VS Code| Visual Studio| Git| PyCharm| Jupyter| Figma
Data Science: Pandas| Matplotlib| NumPy
Courses: Structures| Materials| Aerodynamics| Thermodynamics| Jet Propulsion| Stability & Control| OOP