Aman Basawanal

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EDUCATION

Carleton University — Ottawa, Ontario
Master of Applied Science, Aerospace Engineering — *Dec 2023*
GPA: **11.5/12**

Embry-Riddle Aeronautical University — Prescott, Arizona
Bachelor of Science, Aerospace Engineering — *Dec 2021*
Area of Concentration: Aeronautics — GPA: **3.98/4.0**
Minor: Aviation Safety

SKILLS

- Certified CATIA V5 Specialist - Mechanical Designer.
- Boeing's Performance Engineer's Tool (PET) for Flight Operations Engineering.
- Proficient in Microsoft Office software, MATLAB, Swift UI and Python.
- Working knowledge of SolidWorks, XFLR5, ANSYS Mechanical and ANSYS Fluent, VHDL, LabVIEW, Java, and C.

RELEVANT COURSEWORK

- Control Systems Analysis and Design, Aerodynamics, Aerospace Structures, Aircraft Stability and Control, Experimental Aerodynamics, Airbreathing and Rocket Propulsion, Instrumentation and Data Acquisition, Detail Aircraft Design, Advanced Vibrations, Computational Fluid Dynamics.

WORK EXPERIENCE

- **National Research Council Canada – Graduate Student Assistant** *2022 – Present*
  - Developing a national airspace model using the pandas toolbox in python and data from NAV Canada and Transport Canada (TC) to be used by TC in the creation of regulations for the integration of RPAS (Remotely Piloted Aircraft Systems) into the national airspace
  - Providing United Therapeutics with an analysis of air traffic density in the Toronto area, as well as suggestions regarding the safest corridor options for their organ delivery missions using drones, through an analysis of the statistical features (speeds, turn rates, altitude etc.) of potential intruders in the airspace

- **Southwest Airlines - Aircraft Performance Engineering intern, Network Operations Control** *2021*
  - Built the standard atmosphere module for a new iPad app (Flight Suite) using Swift UI for aircraft performance related calculations to be performed by Boeing 737 series pilots of Southwest Airlines
  - Wrote scripts in python for automated testing of the product and incorporated feedback from project pilots regarding the user friendliness and optimization of the graphical user interface

- **RISE DAAD, Carl von Ossietzky Universität Oldenburg, Germany - Virtual Research intern** *2021*
  - Assisted a PhD student with the post processing of experimental studies of the MoWiTO wind turbine for potential applications in future onshore and offshore wind energy projects in the European Union
  - Used openFAST to run aeroelastic simulations incorporating fluid structure coupling to study the steady-state and transient behaviors of the MoWiTO wind turbine under various inflow wind conditions together with the use of various controllers
  - Worked on updating the MoWiTO turbine's current structural, aerodynamic and elastic properties in the simulation model for optimal power generation and minimal fatigue damage accumulation

- **Southwest Airlines, Dallas, TX - Aerodynamics and Aircraft Performance Engineering intern** *2020*
  - Analyzed aerodynamic configurations and modifications, airport and aviation critical area changes, and environmental conditions to determine mission capabilities for our fleet of Boeing 737-700s and 737-800s.
  - Analyzed takeoff, landing and cruise performance of the Boeing 737 MAX series under various conditions for reintroduction into service.

- Developed special flight procedures and flight plans to help minimize the impact of performance-limiting situations for our fleet of Boeing 737-700s and 737-800s.
- Completed various aircraft performance projects using C, Excel, SQL, XML and Boeing's PET.

- **Aviation Safety Program Office Assistant, Embry-Riddle Aeronautical University** *2020-2021*
  - Analyzing and processing aircraft flight data for the school's fleet of Cessna 172s and Diamond DA40s.
  - Assisting with safety report processing, inspecting and testing safety investigation equipment, inspecting and replenishing aircraft survival kits.

- **Competitive Design Teams**
  - Worked on designing and building a drone mountable device that extinguishes fire using sound waves.
  - Worked on the braking sub-team of AZ Loop – a design and competition team to build a Hyperloop pod.
  - Worked on the safety and stability team for the Society of Automotive Engineers, Aero West while building an RC plane for a design, build and fly competition.

- **Tutoring and Teaching Assistant**
  - Teaching Assistant and grader for Computer Aided Conceptual Design of Aerospace Systems at Embry-Riddle Aeronautical University and Solid Mechanics at Carleton University.
  - Tutor for Calculus and Analytical Geometry, Physics, Fluid Mechanics, Thermodynamics and Peer Instructor for Calculus at Embry-Riddle Aeronautical University.

LEADERSHIP ROLES

- Led a team of 5 from my school to win the 'Teenovators' challenge, 2017 – a nation-wide innovation competition at Manipal University and was awarded the Teen innovator of the year award.
- Served as Peer Instructor and Teaching Assistant at Embry-Riddle Aeronautical University.
- Led a team of 4 to reverse engineer and model a de Havilland Comet 4 aircraft using CATIA V5 and create drawings and sections to laser cut and assemble the model.

PROJECTS

- **Graduate Research –** Researching the impacts of urban environments on the performance and operation of Remotely Piloted Aircraft Systems (RPAS) in terms of the risks and costs of factors such as encountering adverse wind patterns, air traffic, and other ground and air risks factors.
- **Boeing Cargo Aircraft –** Aircraft Performance engineer for a Boeing sponsored senior design project to design a cargo freighter to eventually replace the Boeing 747-8F. Explored the effects of wing flexure on drag and weight reduction using computational tools (AVL and XFLR5) and wind tunnel testing.
- **Undergraduate Research –** Researched the effects of leading and trailing edge flaps on flat plates at low Reynolds numbers using a low-speed wind tunnel, under a university grant, for potential use on Micro Aerial Vehicles (MAVs).
- **Aircraft Structures Class Project –** Used ANSYS Mechanical APDL to build a finite element model of a wing to meet various requirements such as tip deflection, yield stress and weight under certain expected wing loading and flight conditions.

AWARDS AND HONOR SOCIETIES

- Vishnu Mehrotra Scholarship in Mechanical and Aerospace Engineering *2022*
- DAAD RISE Research Scholarship, Carl von Ossietzky Universität Oldenburg, Germany *2020, 2021*
- Boeing Career Mentoring Program *2020-Present*
- Sigma Gamma Tau, Tau Beta Pi, Phi Kappa Phi *2018-Present, 2019-Present, 2020-Present*
- Dean's List, Embry-Riddle Aeronautical University *2017, 2018, 2019, 2020*
- Embry-Riddle Aeronautical University Honors program *2017-2021*
- Presidential Scholarship, Embry-Riddle Aeronautical University *2017-2021*
- Teen Innovator of the Year, India *2017*