Xinping Yu (Carl Yu)

Address: 1201-1551 Lycée Place, Ottawa, ON, K1G 4B5
Phone: 613-276-9039 / Email: carlyu@cmail.carleton.ca

EDUCATION

Bachelor of Aerospace Engineering (Stream A – Aerodynamics, Propulsion and Vehicle Design)
2016.9 – 2021.5 Carleton University, Ottawa, ON.

RELEVANT SKILLS, EXPERIENCES AND ACCOMPLISHMENTS

- **Technical Skills**
  - ability to simulate, analyze and create 3D structural models, in On shape, ANSYS APDL, CFX, CATIA.
  - Fluent in utilizing Microsoft Office, Excel, MATLAB.
  - Two years of experience in the design of small aircraft and hybrid-electric VTOL aircraft.
  - Familiar with C++ program language.

- **Communication Skills**
  - Fluent in Mandarin and English
  - Understanding and skilled in writing design reports and proposals.

- **Analytical and Research Skills**
  - Evaluated various projects and materials.
  - Capable of downloading, cleaning and importing data.
  - Developed, analyzed and evaluated design concepts.
  - Capable of researching journals, data, methodologies, etc.
  - Proficient in the theory and method of aircraft initial size design and static aircraft balance analysis.
  - Experience in simulation and design of midsize commercial aircraft and landing gear.
  - Rich experience in MATLAB application and simulation.
  - Proficient in aircraft performance theories and methods.
  - Knowledge of finite element method, computational fluid dynamics and composite materials theory and calculation methods.

APPLIED PROJECTS

1. **Project Name**: Advanced Aircraft Design (2020.9 - 2021.5)

The project is to design a VTOL hybrid-electric small aircraft for standard, aerial medical and cargo transport missions.

- **Main Responsibilities**: Team leader for aircraft initial sizing design and stability analysis
  - Independently researched and studied the initial sizing method of hybrid-electric aircraft through online academic resources.
  - Use MATLAB to calculate and iterate three maximum take-off weights and empty weights that meet three missions' requirements.
  - Confirm the accuracy and feasibility of the calculated data by comparing existing aircraft data.
  - The type and geometry of the aircraft wing were designed with maximum take-off weight.
  - The performance matching diagram of the aircraft was made by MATLAB and the level of hybridization of power level was calculated to select the wing load and power to weight ratio of the aircraft under three missions and compared with the existing data for feasibility.
  - Based on the aircraft static stability theory, the longitudinal and transverse static stability equations of the aircraft are developed, and the static margin of the aircraft is calculated.

- Determine the influence variables according to the static margin and optimize the size of the aircraft tail and wings to make the design meet the requirements of longitudinal static stability.
- A longitudinal trim analysis is calculated by MATLAB to determine the elevator angle in different lift conditions.
- Calculate the yaw-moment derivative and roll-moment derivative through MATLAB to prove that the aircraft is transverse static stability.
- Verify the accuracy and feasibility of the calculated data by comparing it with historical aircraft data.

2. **Project Name**: Composite Materials Project (2020.9 - 2020.12)

This project is to analyze and develop composite materials for aircraft propeller spinner.

➢ **Main responsibilities**: Responsible for micromechanical analysis

- The composite material of the designed spinner is a single laminate design with three piles.
- Modelling and simulation of the designed spinner with ANSYS APDL to determine the X and Y axis stresses and XY axis shear stresses.
- Calculated the stiffness matrix components of composite materials by MATLAB.
- Calculated the longitudinal, transverse and shear stress strength ratio by using the ultimate strength of the laminate.
- Calculated data are compared with composite material theory to prove that the composite is safe to design under the required load conditions.

3. **Project Name**: Aerospace Design and Practice Project (2020.1 - 2020.4)

This project is to design a long-range mid-sized business jet.

➢ **Main Responsibilities**: Individual project and responsible for designing the business jet.

- Studied similar mid-size aircraft data from books, aircraft databases, and online academic journals and used them for design purposes.
- Used MATLAB to analyze aircraft maximum takeoff weight, V-N diagram, performance matching, etc.
- 3D and interior modelling using CATIA.

4. **Project Name**: Computational Fluid Dynamics Term Project (2020.1 - 2020.4)

This project was to learn and be familiar with fluid dynamics and CFX applications.

➢ **Main Responsibilities**: Term project leader

- Simulation of the NACA 0008 airfoil using CFX.
- CFX was used to study the effects of different angles of attack and Reynolds number on the lift and drag of the NACA 0008 airfoil.
- Compare the simulation results with academic resources and published literature in the school database to ensure the accuracy of the data.

5. **Project Name**: Aerospace Vehicle Performance Analysis Project (2019.9 - 2019.12)

This project is to apply aircraft performance theory to perform analysis on existing aircraft.

➢ **Main responsibilities**: Aircraft performance analysis team lead

- Performance analysis of the Boeing 787-8.
- Used MATLAB to calculate take-off, climb, range, endurance and other performance.
- Used performance data from academic resources in the school database to compare with calculated performance data.

INTEREST

- Aerospace-related research and latest articles.
- Interest in drones and modern aircraft news.
- Interest in aircraft design and performance analysis.