Pierre Chamoun

pierre-chamoun | pierre-chamoun | pierre-chamoun.github.io | pierre.chamoun@mail.mcgill.ca

Education

McGill University **Expected Sep. 2027**

Master of Science (M.Sc.), Robotics

GPA: 4.0/4.0 | FRQNT Master's Scholarship | MEUSMA

McGill University **Dec. 2025**

Bachelor of Engineering (B.Eng.), Mechanical Engineering

GPA: 3.97/4.00 | J.W. McConnell Scholarship | NSERC Research Award | Dean's Honour List | McGill Robotics

Technical Skills

Programming	C++, Python, MATLAB
Robotics & Tools	ROS, Docker
Technical Areas	State Estimation, Control Theory, Computer Vision, Machine Learning
Other	Scientific computing, Statistics, GD&T, CAD

Work Experience

Pratt & Whitney Canada **Apr 2025 – May 2025**

Internship in Thermal Analysis and CFD, Turbine Rotating Structures

- Recreated a CAD model in CATIA of a rotating heat transfer test rig originally used in the 1980s to develop one-dimensional correlations for heat transfer coefficients on rotating turbine discs.
- Developed a CFX computational fluid dynamics (CFD) model of rotating turbine discs and calibrated it to match heat-transfer measurements obtained from thermocouples at specific locations.
- Derived three-dimensional heat-transfer correlations from the CFD simulation results.

Pratt & Whitney Canada **Jan 2025 – Apr 2025**

Engineering Internship in Mechanical Design

- Introduced engineering changes to reduce non-conformities resulting from the manufacturing process or to accommodate supplier requests.
- Validated and prepared documentation for various engineering change requests.
- Familiarized with the operation, manufacturing, and assembly of Pratt & Whitney Canada's main gas turbine engines.

McGill Aerodynamics Laboratory **May 2024 – Aug 2024**

Research Internship in Computational Fluid Dynamics

- Applied machine learning techniques to study a hydrodynamic field resulting from a simulation of a turbulent oscillatory internal flow.
- Used Python to perform principal component analysis (PCA) to reduce the dimensionality of the information space needed to describe the hydrodynamic field.
- Calibrated a nonlinear model to predict the temporal dynamics of the fluid velocity field by estimating the evolution of its principal components.

McGill Aerodynamics Laboratory **May 2023 – Aug 2023**

Research Internship in Computational Fluid Dynamics

- Conducted direct numerical simulations using Channelflow to study turbulent internal flows subjected to an oscillatory pressure gradient.
- Used the Unix interface to operate the Graham computing cluster of the Canadian Digital Research Alliance.
- Performed data analysis with Python using statistical and spectral methods.

Projects

Auxiliary Transmission Box for a Small Aircraft

Modeled an auxiliary transmission box including gears, shafts, and bearings in SOLIDWORKS. Optimized free parameters using Python to minimize mass and size while adhering to fatigue stress safety criteria.

Prototype for an Automatic Pill Counter

Designed components in SOLIDWORKS, 3D printed the prototype, and created an Arduino-controlled circuit. Won first place in the class design competition.

Wall-Mounted Key Holder

Designed components in SOLIDWORKS, 3D printed plastic parts, and determined toolpaths with Mastercam for milling and turning of metal components.

Thruster Positioning for an Autonomous Underwater Vehicle

Developed a Python code to analyze thruster positioning configurations for an autonomous underwater robot. Verified 6-DOF feasibility and identified the optimal configuration minimizing average current draw.