Terrin Stachiw

(905) 706-8464
terrin.stachiw@gmail.com
linkedin.com/in/terrin-stachiw

Skills and Expertise

- Finite element analysis: *ANSYS Mechanical* and *MSC NASTRAN/PATRAN*
- Multibody dynamic simulation: *MSC Adams*
- Programming: *Visual Basics for Applications* (basic), *C++* (basic), *MATLAB* (advanced)
- 3D modelling using *PTC Creo* and *CATIA*
- Fixed- and rotary-wing aerodynamic modelling
- Flight simulation
- Landing dynamics and simulation
- Structural dynamics
- Optimization
- System identification

Work Experience

Professional Services Contractor – Flight Modelling and Simulation Since January 2018
Flight Test Techniques, Modelling, and Simulation Co-op Student May 2016 to August 2017
Ottawa, Ontario

- Provided critical support through all phases of the back-to-back flight testing of the Canadian Coast Guard Bell 429 and Bell 412EPI helicopters, which included the following tasks and achievements:
  - Coordinated with multiple departments to create project proposals and schedules, and facilitated progress meetings to track tasks ultimately resulting in the completion of the project both on-time and on-budget
  - Developed a data processing suite to process and validate flight data over 200 times faster than legacy software
  - Served as an in-flight instrumentation specialist to monitor and troubleshoot the instrumentation system, and to adapt the flight test plan as needed, which allowed the successful generation of over 100 hours of flight data
  - The project culminated in the receipt of the **NRC Outstanding Achievement Award** in the Partnership category in recognition for efforts that maximized NRC's assets to execute the project under a tight timeline
- Lead the technical review and remedy of complex simulation and system identification software suites developed in *C++* and *MATLAB* to advance capabilities for the modelling and simulation of aircraft upsets, novel aircraft designs, unstable aircraft, and fixed- and rotary-winged aircraft

Co-op Student, Airlift Capability Project–Tactical May to August 2015
Department of National Defense *Gatineau, Quebec*

- Conducted independent research on various topics of interest pertaining to the capabilities of the CC-130J, communicated findings in two major reports, and presented the findings to the team in meetings and formal presentations
- Implemented maintenance scheduling functionality for the fleet of aircraft using *Visual Basics for Applications* in shared *Microsoft Excel* documents, which facilitated faster navigation and modification of the documents

Education

Master of Applied Science: Aerospace Engineering September 2018 to April 2020
Research Associate Since April 2020
Carleton University *Ottawa, Ontario*

GPA: 11.8/12
Thesis: *Development and Synthesis of Mechanical Networks Including Inerters In Landing Gear Suspensions of Flexible Aircraft for Improved Landing Performance and Comfort at Touchdown*

- Developed a flexible airframe model using *MSC NASTRAN* and performed simulations in *MSC Adams* to demonstrate the effect of airframe flexibility on landing loads and the dynamic response at landing
- Designed and optimized novel shock absorbers to demonstrate their potential to control the dynamic response of the airframe, which was shown to improve several human comfort metrics over a conventional oleo-pneumatic shock absorber baseline

Teaching Assistant for *AERO 3002: Aerospace Design and Practice* and *AERO 4003: Aerospace Systems Design*

Bachelor of Engineering: Aerospace Engineering (with High Distinction) September 2013 to April 2018
Carleton University *Ottawa, Ontario*

GPA: 11.5/12
Awards: Dean's Honour List (2014, 2015, 2016, 2018) and Senate Medal for Outstanding Academic Achievement
Teaching Assistant for *MATH 2004: Multivariable Calculus for Engineering or Physics*
Peer Mentor for *CCDP 2100: Communication Skills for Engineering Students*

Applied Projects

Aerodynamic Devices Specialist and Expert Consultant September 2017 to December 2020
Ravens Racing Formula SAE

- Performed the aerodynamic and mechanical design and simulation of the aerodynamic devices using *ANSYS Fluent* and *ANSYS Mechanical*, as well as the manufacture of the carbon fibre components resulting in a design with improved performance and durability, thus contributing to the improvement of the finishing position from 57th the year prior, to 7th place in the 2018 Formula SAE Michigan international competition
- Served as part of a team in competition to prepare the car for static and dynamic events and presented design and analysis work pertaining to the aerodynamics of the car in the "Design Event," with the aerodynamics design work scoring the top marks compared to other categories
- Served as an Expert Consultant to members in the aerodynamics and dynamics groups to provide continuity and advice, which helped the team further improve its finishing position to 6th place in the 2019 Formula SAE Michigan international competition

Selected Honours and Awards

Recipient, Natural Sciences and Engineering Research Council: Canada Graduate Scholarship–Master's 2019
Recipient, Senate Medal for Outstanding Academic Achievement–Undergraduate 2018
Recipient, NRC Outstanding Achievement Award–Partnership 2017
Nominee, Carleton Co-op Student of the Year Award 2017

Publications

Conference Presentations and Proceedings

T. A. Stachiw, F. Khouli, R. G. Langlois, and F. F. Afagh, "The Use of an Inerter in an Aircraft Landing Gear Suspension for Improved Passenger and Crew Comfort at Touchdown," in *AIAA SciTech 2020*, Orlando, FL, 2020, AIAA-2020-1681. doi: 10.2514/6.2020-1681

T. A. Stachiw, F. Khouli, R. G. Langlois, and F. F. Afagh, "The Effect of Airframe Flexibility on Dynamic Landing Gear Loads," presented at CASI AERO 2019, Laval, QC, 2019.

Technical Reports

K. Hui, **T. Stachiw**, A. Jamran and B. Carrothers, "Flight Test Data Gathering for the Canadian Coast Guard Bell 429 Helicopter". Laboratory Technical Report No. LTR-FRL-2017-0068, National Research Council Canada, Ottawa, 2017.

K. Hui, **T. Stachiw**, A. Jamran and B. Carrothers, "Flight Test Data Gathering for the Canadian Coast Guard Bell 412EPI Helicopter". Laboratory Technical Report No. LTR-FRL-2017-0067, National Research Council Canada, Ottawa, 2017.

Administrative Experience

Treasurer, American Institute of Aeronautics and Astronautics, Carleton Chapter 2016 to 2017
Elected Representative, Rideau River Residence Association 2013 to 2014

Memberships

Student Member, American Institute of Aeronautics and Astronautics (AIAA) Since 2015
Student Member, Professional Engineers Ontario (PEO) 2013 to 2018