# Alexander Urquhart

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## EDUCATION

**Bachelor of Engineering in Aerospace: Aerodynamics and Propulsion, Co-op Option**

- Carleton University, Ottawa, ON
- Expected Graduation: June 2021
- CGPA: 10.54/12.0 (A-)
- Expected Graduation: June 2021

## RESEARCH EXPERIENCE

**Student Researcher** **September 2020 – April 2021**

*Capstone Project - Department of Mechanical and Aerospace Engineering, Carleton University*

- Worked under the joint supervision of Dr. John Gaydos, Dr. Tarik Kaya and Dr. Edgar Matida as a student member of the Sustainable Energy Systems design project.
- Explored the feasibility of overhauling the existing electricity grid in the northern community of Iqaluit to be compatible with either an upgraded, green-oriented diesel energy production system or a new natural gas energy production system.
- Conducted extensive studies aimed at assessing the financial impacts and technical challenges currently preventing wide-scale implementation of similar proposals
- Worked in close coordination with other team members to conduct reviews of existing literature, perform the relevant numerical analysis of the current/proposed systems and develop decision matrices to explain the rationale behind decisions
- Collaborated with other team members to provide regular technical memos and online presentations for keeping senior project leadership informed of any progress

## PROFESSIONAL EXPERIENCE

**Stress In-Service Engineering Intern** **May 2019 – August 2020**

*Collins Aerospace (formerly UTC Aerospace Systems) – Oakville, Ontario*

- Worked under the joint supervision of Senior In-Service Engineer William Hung and Stress Lead Bhuwan Jain as a student stress analyst for a 16-month term of service.
- Conducted both classical and finite element (FE) stress analysis on potentially compromised in-service landing gears to assess for possible airworthiness concerns
- Developed loads reports in conjunction with Transport Canada delegated authority officers to properly outline analysis findings and the rationale behind key decisions.
- Assisted the stress production team by providing preliminary classical stress analysis on various in-development military aircraft during high-volume periods.
- Provided extensive mentorship to the replacement student analyst by sharing resources, hosting virtual training sessions and providing on-the-job coaching.

## HONORS AND AWARDS

- SHAD Scholarship of Excellence 2016-2019
- Dean's List Honors Student 2016-2018
- Loran Scholarship Finalist Award 2016-2017

## RELEVANT SKILLS

### Technical Skills

- Regular use of standard beam modeling software to represent load paths through landing gear systems and conduct stress analysis using classical techniques.
- Experience using Abaqus CAE modelling software to perform stress analysis on aircraft landing gear components using finite element (FE) methodology.
- Competent in using CATIA to navigate and interpret complex three-dimensional engineering models, as well as relate them to their base three-view schematics.
- Introductory experience in using ANSYS CFX software to design a preliminary gas turbine engine fan stage using computational fluid dynamics (CFD) principles.
- Familiar with using programming languages, such as MATLAB and C++, along with numerical methods to produce algorithms and models for engineering applications.
- Proficient use of Microsoft Office software programs (Word, Excel) for the dual purpose of analyzing technical data and generating detailed reports of any findings.

### Communication and Teamwork Skills

- Well-developed written communication skills to efficiently generate detailed, reports of any technical findings, as well as the critical underlying conclusions.
- Significant experience orally presenting technical findings to supervisors (delegated authority officers, professors) and justifying said findings in a formal setting.
- Excellent organizational skills to effectively prioritize multiple projects, handle a variable workload and effectively delegate responsibilities where needed.
- Outstanding individual work ethic and motivation to effectively complete tasks independently where required, both on a short-term and long-term basis.
- An understanding of when to ask for assistance and a willingness to continually learn from other team members' unique skillsets and past experiences.

### Analytical Skills

- Able to critically analyze complex situations by using personal engineering judgement to properly consider all available data and reach an appropriate decision.
- Excellent problem-solving skills, which allows for real-time responses to any potential setbacks by using solutions that are both creative and realistic in scope.
- Strong ability to select and process relevant information while conducting technical research; frequently used to compile and present data unambiguously and credibly.
- Considerably skilled at quickly absorbing new technical concepts and learning valuable on-the-job information, both individually and from other colleagues.