# Lochlin King

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## Education, Certifications, and Awards

**BSc. Mechanical Engineering | University of Alberta | Graduated April 2020 | 3.4 GPA**
*Key Electives: FEA for Mechanical Engineers, Applied CFD, Feedback Control Design, Aerodynamics*
- GD&T Certificate (GD&T Basics Fundamentals and Advanced Courses), 2021
- Certified SolidWorks Professional (CSWP), 2019
- NSERC Undergraduate Student Research Award, 2019
- Junior Honours Design Award, 2018

## Experience

**Mechanical E.I.T. | Space Engine Systems | Mar. 2021 – Present**
- Developed a semi-empirical shell-tube heat exchanger design and optimization code in Python
- Computed sensitivity studies in COMSOL Multiphysics to identify critical heat exchanger design variables
- Took ownership of prototype aerostructure design, analysis, and fabrication from concept to completion
- Planned, coordinated, and led manufacturing activities with engineering team to maintain schedule
- Successfully delivered complete physical aerostructure prototype in a timely manner
- Designed and tested a ramjet combustor capable of continuous operation at 4.137 MPa (600 psi)
- Leveraged fluid and combustion knowledge to solve problems diagnosed during ramjet test program
- Implemented GD&T controls into engineering drawings to ensure correct fit, function, and assembly
- Enhanced part manufacturability and shortened lead times by collaborating with local machine shops
- Conducted engine inspections of GE-J79 turbojet engines and advised management during purchasing
- Facilitated internal audits of AS9100 certified quality management processes

**Lead Student Engineer| Student Team for Alberta Rocketry Research (STARR) | Aug. 2018 – Mar. 2021**
- Led a 30-member team in the development of a solid fuel rocket for the IREC competition
- Assigned tasks, held weekly design meetings, met with sponsors, and procured materials
- Reduced airframe cost by 80% through appropriate material selection and procurement
- Calculated external loads and performed analytical stress analysis on thrust plate and longerons
- Tested mesh convergence and validated finite element results with analytical calculations
- Presented research to industry experts at the 2018 and 2019 Aero-Day conferences on behalf of STARR

**Vertical Takeoff and Landing System, Capstone Project| University of Alberta | Jan. 2020 – Apr. 2020**
- Designed and developed a vertical takeoff and landing system (VTOL) for a fixed wing drone
- Generated and systematically refined, high quality, structured, hexahedral meshes in ANSYS
- Performed a topology optimization in ANSYS to reduce the VTOL structure mass by nearly 50%
- Completed verification simulations of optimized structure and validated results with analytical model
- Designed a 3D printed wind shroud, reducing drag by an estimated 25% compared to original design
- Successfully delivered the completed system on time and 20% under budget

## Technical Skills

| Analysis | Design | Manufacturing | Programming |
|---|---|---|---|
| ANSYS Workbench | Solidworks | Additive manufacturing | Python |
| COMSOL Multiphysics | Fusion360 | Manual lathe and mill | C++ |
| Siemens STAR-CCM+ | GD&T | Metrology equipment | HTML |
| Matlab/Simulink | OpenMDAO | TIG, GMAW, SMAW | CSS |