# Calvin DeKoter

Mechanical Engineering, Term 3A
University of Waterloo

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## Summary of Qualifications

### Mechanical Design and Fabrication
- Skilled in the mechanical design of precision metal parts for power transmission, structural components, and fixturing
- Adept at solid modelling and metal component design using **SolidWorks** to create parts and larger assemblies
- Experienced with the metal lathe and mill, **MIG welder**, and precision tools such as the coordinate measuring machine
- Proficient with **carbon fibre** composite manufacturing methods like **resin infusion**, vacuum bagging, and wet–layups

### Simulation and Analysis
- Experienced with **Star-CCM+**, a finite element analysis software, modelling fluid flow, heat transfer, and electricity
- Capable of thermal and structural analysis using Excel and SolidWorks to validate mechanical and electrical designs
- Skilled with data analysis and visualization using **Microsoft Excel and VBA**, Matlab, GNU Octave, and **Artemis Suite**

### Education and Personal Profile
- Candidate for Bachelor of Applied Science at the University of Waterloo, Honours Mechanical Engineering, Term 3A

## Work Experience

### Richard Childress Racing
Junior Aerodynamics Engineering                                           Jan. 2020 – Mar. 2020
- Accurately evaluated NASCAR aerodynamic devices in full–scale wind tunnels with an uncertainty of only 0.5%
- Analyzed 3D scan data with GOMInspect software to produce templates and inform aerodynamic design decisions

### Ontario Drive and Gear                                                 Gear Division
Quality Engineering Assistant                                            May 2019 – Aug. 2019
- Precisely measured machined parts using calibrated tools in an ISO 9001 environment while applying GD&T principles
- Automated collection of data from computerized measuring tools to minimize paper use and prevent data entry errors
- Programmed a CNC contour tracer to measure and evaluate turned features, reducing measurement time by 50%

### Schukra of North America                                              Leggett and Platt Inc.
New Product Development Co–op                                            Sept. 2018 – Dec. 2018
- Methodically designed and tested actuator prototypes to improve noise and durability while maintaining part costs
- Organized and analyzed noise data to objectively grade actuator sound quality with Artemis Suite and Microsoft Excel
- Reduced the time taken to process and visualize oscilloscope measurement data by 80% with an analysis template

### Hastech Manufacturing                                                 Linamar Corporation
Quality Co–op                                                           Jan. 2018 – April 2018
- Organized paperwork and quality data to complete the monthly statistical quality report using Minitab 2017
- Used Excel and VBA to automate the collection and analysis of measurement data from in–line process gauges

## Extracurricular Activities

### Waterloo Formula Electric
Technical Lead and Mechanical Team Member                                Sept. 2017 - Present
- Eagerly accepted leadership duties managing mechanical design and team finances during the Fall 2019 school term
- Designed and simulated high current cell protection fuses conforming to a specific fusing curve using Star-CMM+
- Analysed airflow through radiators to correlate simulation data from Star-CCM+ with tested cooling performance
- Developed and fabricated steel punch and die tooling to cut the designed fuse into cell tabs for the car's battery
- Machined a variety of tight–tolerance parts on the lathe and mill, including 80 spacers using custom HSS tooling
- Used SolidWorks and GrabCAD to manage CAD files and collaborate with a team of more than 50 people

### Projects and Hobbies
- Used the metal lathe and mill to make functional parts from metal and wood, create useful tooling, and make repairs
- Played intramural competitive dodgeball and volleyball to exercise and relax