# Herman Grewal

Mechatronics Engineering
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## SUMMARY OF QUALIFICATIONS

- 2 years of diverse mechanical engineering co-op experience in aerospace industry at Pratt & Whitney Canada
- Established mechanical design knowledge with 40+ industry projects with 100+ production level drawings & models released
- Experienced designing for manufacturability, reliability, cost & weight while validating designs with FEA & tolerance analysis
- Motivated team player with proven collaboration & communication skills in global team environment
- Skillful creative thinker with diverse portfolio of integrated solutions of mechanical, electrical & software engineering
- Highly analytical with numerous awards for published research and academic excellence in mechatronics engineering

## SKILLS

**CAD**
CATIA V5 • SolidWorks • AutoCAD
CADAM • Inventor

**FINITE ELEMENT ANALYSIS**
ANSYS • SolidWorks Simulation
CATIA V5 Generative Structure Analysis

**MANUFACTURING**
GD&T • Tolerance Analysis • DFA/DFM
Additive (SLS) • 3D Printing • Machining
Injection Molding • Welding • Forgings
Sheet Metal Forming • Castings

**SOFTWARE**
C • C++ • MATLAB • Simulink • VBA

**HARDWARE**
Sensor Selection • Arduino • PCB
Soldering • Oscilloscope

**PRODUCT MANAGEMENT**
ENOVIA VPM • 3DEXPERIENCE PLM
SharePoint • Git • Slack

## EDUCATION

**UNIVERSITY OF WATERLOO**
B.A.Sc in Mechatronics Engineering
Jun 2019 | Waterloo, ON
Ranked in Top 10% of Class
Dean's Honour List
Cum. GPA: 3.93 / 4.0

## AWARDS

Autodesk Capstone Design Award
University of Waterloo, 2019
Richard Matzeg Memorial Scholarship
University of Waterloo, 2017
President's Research Award (x2)
University of Waterloo, 2016, 2015
Aspiring Engineer Scholarship
Professional Engineers Ontario, 2015
President's Scholarship of Distinction
University of Waterloo, 2014

## EXPERIENCE

View Full CV

**MECHANICAL DESIGNER** | Pratt & Whitney Canada
Jul 2019 - Present, Jan 2018 - Aug 2018, Sep 2016 – Dec 2016 | Toronto, ON

- Over 2000 hrs drafting 2D detailed drawings & 3D models using CATIA V5
- Proficiency in ENOVIA V5 & V6 for version control, BOM management, change management & approval routes
- Coordinated designs with global manufacturers, suppliers & partners

Experimental Bearing Housing Design Project
- Designed housing assembly on multiple test builds for vibration reduction
- Defined mating features for assembly, calculated fits & applied GD&T

Composite Clamp Design Project
- Redesigned machined aluminum clamps to injection molded composite clamps
- Consulted Manufacturing & Materials for new drawing notes & GD&T controls
- Drafted memo outlining 60% cost savings & 50% weight reduction
- Validated design with static stress FEA on bolted clamp assembly

Additive Manufacturing (SLS) Bracket Project
- Designed titanium brackets fabricated through laser powder bed fusion
- Iterated on design to improve for dynamic & static stresses
- Presented and validated designs for manufacturability & installation

**TECH PUBS ANALYST** | Pratt & Whitney Canada
Apr 2017 – Aug 2017 | Toronto, ON

- Created exploded assembly illustrations using CATIA V5 & Auto-Trol TI s/w
- Worked with technical writers to incorporate new parts into production builds
- Delivered on strict deadlines through job tracking & time management

**WEIGHTS ANALYST** | Pratt & Whitney Canada
Jan 2016 – Apr 2016, May 2015 - Aug 2015 | Toronto, ON

- Investigated manufacturing scatter to validate customer commitments
- Performed statistical analysis and risk models using Six Sigma methodology
- Conducted rotor burst analysis for critical rotating parts per FAA standards

## PROJECTS

View Full Portfolio

**AUTONOMOUS ROBOT** | Sep 2017 - Dec 2017 | Waterloo, ON

- Designed 3D printed propeller covers, PVC pipe frame, sensor supports & seals
- Conducted simulated and empirical testing to validate hardware & prototypes
- Performed sensor selection & integration for ultrasonic, IMU & light sensors
- Coordinated with electrical & software leads to streamline product integration

**BRIDGE DESIGN** | Apr 2016 – Jul 2016 | Waterloo, ON

- Planned and performed physical stress tests to iterate on prototype designs
- Conducted FEA on truss elements using ANSYS & SolidWorks models