JOYCE WU

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LinkedIn

TECHNICAL SKILLS

CAD & Design: SolidWorks, Inventor, AutoCAD, GD&T, 3D Printing
Simulation & Analysis: FEA, Root Cause Analysis, Statistical Analysis (Excel, R), MATLAB
Programming: Python, C, C#, Arduino
Data & Documentation: SOP Development, Test Protocols, Technical Reports, Excel, Microsoft Office

WORK EXPERIENCE

Mechanical Engineer Intern - Food Process Solutions **January 2024 – May 2024**

- Designed mechanical component drawings for Spiral Immersion Systems, freezers, and chillers using AutoCAD and Inventor, assigned over 5 subassemblies every 2 weeks, where each is composed of 5 to 20 components.
- Led design and development of custom reusable, food-safe grade containers for freezing ground meat; performed FEA to test design under dynamic loading before physical prototyping and testing.
- Constructed and executed testing of reusable containers, aiming for zero expansion at -10°C through precise FEA validation.
- Created accurate, to-scale 3D models of 5+ freezers in Autodesk Inventor to ensure quality and completeness for client presentations monthly.

STUDENT DESIGN TEAM

Mechanical Engineer Intern - GEA Group **June 2023 – December 2023**

- Successfully designed a lightweight cleaning tank stand in Inventor, with more than 20 reduced parts and more defined weld points, improving manufacturing process and ease of assembly by 20%.
- Developed test cases and performed FEA in Inventor to verify the cleaning tank stand could reliably withstand 50% additional weight during real-life conditions like filling, emptying, and lifting.
- Performed historical design analyses and root cause investigations on over 100 past projects, investigating correlation between freezer drum size and torsional load failure to assist with future process development and product design.
- Successfully and meticulously designed over 30 subassemblies in Inventor for freezers for assembly and production; created detail-oriented 2D drawings and BOM for manufacturing.

Mechanical Engineer - UBC Bionics **July 2022 - January 2024**

- Successfully designed a manual wrist with a locking mechanism in SolidWorks for a robotic prosthetic arm, which includes the ability to rotate, attach, and detach from the arm for international competition, Cybathalon.
- Designed and 3D printed gear components with a custom size and tooth profile to meet size constraints in the wrist for electronic components and to increase the loading support on the fingers by 75%.

PROJECTS

Project Lead - Utilizing Passive Haptic Feedback for Gait Correction **January 2022 – April 2022**

- Designed a wearable leg brace that uses passive haptic feedback to stimulate muscles and support faster recovery from mobility issues originating in the lower limbs.
- Modeled and assembled all 10 mechanical components of the leg brace using SolidWorks, ensuring ergonomic fit and structural integrity, and conducted FEA in SolidWorks to evaluate strain and stress on critical components.
- Successfully led team to deliver final report with comprehensive medical research, market analysis, and design evaluation on time.

Project Team Lead - Stroke Rehabilitation Glove **September 2024 - April 2025**

- Successfully led a capstone project developing an assistive device for stroke survivors, replicating physiotherapy exercises, by managing all project phases with timelines and calendars, ensuring on-time delivery for the client and Design & Innovation Day.
- Served as primary liaison between the client, team, and supervisor, aligning goals, managing expectations, and resolving issues proactively.
- Oversaw procurement of materials, managed the project budget, and monitored progress to ensure key milestones and deliverables were met.

Researcher - Drug Overdose Detection Device **October 2020 – March 2021**

- Created a wearable monitoring device for overdose prevention, using Arduino and C for real-time heart rate detection.
- Modeled a slim, lightweight, and wearable device enclosure in SolidWorks to house a heart rate sensor and Arduino.
- Analyzed heart rate data in MATLAB to define upper and lower thresholds indicating potential overdose onset, enabling real-time danger zone alerts.
- Collaborated on the full development lifecycle**,** including market research, component sourcing, testing, and final documentation.

VOLUNTEERING

Head Coach - Burnaby Central Athletics, Ultimate Team **January 2023 - June 2025**

- Grew team engagement by 50% year-over-year through inclusive coaching, effective communication between school staff, students, and co-coaches, along with mentorship of student athletes.
- Planned and hosted a regional tournament with 6+ schools and over 300 participants, significantly increasing school spirit and community involvement.

Publicity Manager - UBC Biomedical Engineering Undergraduate Student Association **August 2021 - May 2023**

- Designed and executed multi-platform marketing campaigns, increasing event attendance by 85%.
- Collaborated across executive teams to align messaging and branding for academic and industry events.

EDUCATION

Bachelors of Applied Science in Biomedical Engineering **Novemeber 2025**
University of British Columbia - Specialized in Biomechanics and Biomaterials