

JACKY CHEN

Mechatronics/Mechanical Engineer

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SKILLS

Mechanical: SolidWorks, Inventor, AutoCAD, Product Design, FEA, Iterative Design, Rapid Prototyping, DFM, GD&T, FMEA, COMSOL, System Integration

Software: C++, C, MATLAB, VBA, Python

Electrical: Circuit Design, Microprocessors and Interfacing, Soldering

EDUCATION

University of Waterloo

- Bachelors of Mechatronics Engineering

May 2022

EXPERIENCE

Cell Fluidics Engineering | Mechatronics/Mechanical Engineer San Francisco Bay Area | March 2023-Present

- Lead engineer on the design and development of CellFE's new high volume transfection device
 - Designed and prototyped a biocompatible device to compress high volumes of biological cells through multiple microfluidic chips resulting in over 100x higher transfection throughput
 - Performed structural FEA and built fixtures to design complex custom 3D gaskets that would enable tight sealing between microfluidic chips without critical failure
 - Iteratively manufactured silicon rubber gaskets in house with variations on 3D printed molds
 - Used flow simulations to design optimal geometric fluid flow paths reducing pressure drop and dead volume
 - Designed around initial failure points such as gasket blowout, leakage, and stress fractures on the microfluidic chips
 - Made initial design machinable and injection moldable while keeping core functionality
- Developed and supported the launch of CellFE's low volume transfection device and instrument
 - Designed fixtures and test methods to categorize transfection devices with different microfluidic chip geometries via flow rate testing
 - Identified a critical leaky valve error that prevented the instrument from pressurizing and successfully implemented preventative measures dropping instrument failure rate from 66% to 0%
 - Selected and communicated with key vendors such as chip pick and place, sterilization and assembly

Lithos Energy | Mechanical Design Engineer San Francisco Bay Area | September 2022-March 2023

- Developed state of the art battery packs for low voltage marine applications
 - Created experiments and built fixtures to evaluate the performance of various sealing adhesives in different forms of mechanical failure such as 3-point bending, shear, 90 degree peel etc
 - Designed an intentional weak point on the battery pack through FEA simulation after discovering critical failure during burst testing
- Developed manufacturing instructions and processes for in house battery manufacturing and development

Envest Product Development | Product Development Engineer Internship Toronto, Ontario | May-Sept 2021

- Designed and prototyped the drivetrain of a fully automated smart chair
 - Validated the fit and function of the gear train through iterative design
 - Performed FEA to optimize materials, geometry and ensure critical failure did not occur
- Created elegant and robust sensor housing for various client hardware companies

Ignis Innovation | Mechatronics Engineer Internship Waterloo, Ontario | Jan-May 2021

Preformed Line Products | Mechanical Engineer Internship Cambridge, Ontario | May-Aug 2020

Ontario Drive and Gear | Program Management Internship New Hamburg, Ontario | Jan-May 2019

For more detailed information on my experience and projects please visit my portfolio, jchportfolio.com