Francis Mesick

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Summary

Graduated Mechanical Engineering student, *summa cum laude*, with an excellent work ethic and strong foundation in mechanical engineering. Excited to apply work experience and knowledge to the mechanical engineering industry to drive innovative ideas and technology to reach organizational goals.

Education

University of Illinois at Chicago **August 2023 - May 2025**

Bachelor of Science in Mechanical Engineering

Summa Cum Laude

Cumulative GPA: 3.51/4.0 Major GPA: 3.87/4.0

First-generation college student; employed 20 hours per week throughout college education

College Of DuPage **August 2020 - May 2023**

Mechanical Engineering

Cumulative GPA 3.2/4.0

Relevant Courses

Propulsion Theory , Dynamic systems and Control, Numerical Methods,

Mechatronics, Mechanical Engineering Design, Manufacturing principles,

Engineering Design and Graphics with Computer-Aided Design and Simulation

Professional Experience

HBK Engineering **June 2024 - August 2024**

Design Engineer Intern

- Ensured design compliance with engineering standards and utility regulations with high attention to detail in a high-stakes environment.
- Designed new underground package conduit systems for ComEd using AutoCAD in compliance with structural systems applications.
- Provided solutions for Astound, a telecommunication client, to address urgent maintenance requests and minimize end user's downtime.
- Utilized Excel to organize work orders from large groups of funding projects.

Projects

Lunabotics **August 2024 - May 2025**

NASA sponsored competition, Student Participant, UIC Engineering Design Team

- Applied the NASA systems engineering process to design and build a prototype Lunar construction robot that performs excavation and dumping functions.
- Performed trade studies using previous competition film and scholarly literature to make science-based decisions.
- Designed a continuous tread using Computer-Aided Design (SolidWorks) to traverse Regolith simulant using mobility systems principles and iteratively enhanced the drivetrain design using ANSYS for optimized durability.
- Ensured compliance with NASA's Lunabotics guidebook by following design and safety protocols and maintained a high standard of engineering practice.
- Collaborated with the team to integrate mechanical designs and enhance functionality for high performance.

Multi-Objective-Bayesian-Optimization **October 2024 - December 2024**

- Designed the architecture of a motor using Simulink for system simulation and control.
- Generated Code from Simulink for TwinCAT 3 system to be deployed onto a motor and controlled in real time.
- Implemented communication between TwinCAT 3 and a Python Bayesian Optimization Target using User Datagram Protocol (UDP).
- Gained practical experience with Bayesian optimization learning the fundamentals of this application for tuning system parameters for enhanced performance.

Core Capabilities / Technical Skills

Analytical Skills | Interpersonal Communication | Leadership

Programming Languages: Python, MATLAB

Microsoft Office Suite: Word, EXCEL, Power Point

ANSYS for Mechanical Design, Simulation, and Optimization

MATLAB | Simulink | SolidWorks | AutoCAD | Adobe Acrobat | Finite Element Analysis (FEA)

Additional Experience

Tin Roof **November 2023 - present**

Barback at high volume, high revenue bar Chicago, IL

- Supported sales and service at this high volume, high revenue bar by stocking and cleaning to provide a professional environment for guests.
- Monitored supplies, replenished liquors, cans, garnishes and barware.
- Proven ability to thrive in a fast paced, high stress environment while successfully managing responsibilities as the sole individual in this role.

Certifications

Certified SolidWorks Associate (CSWA) **August 2025**

Dassault Systèmes SOLIDWORKS

https://cv.virtualtester.com/qr/?b=SLDWRKS&i=C-TWJRH9D3MF

- Earned certification demonstrating fundamental knowledge of SOLIDWORKS, including part and assembly modeling, engineering drawings, and design concepts such as parametric modeling and design intent.