Dominique Frenk

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EDUCATION

Illinois Institute of Technology, Chicago, IL — Expected Graduation: 12/2025

Bachelor of Science, Mechanical Engineering, Minor in Astrophysics

- Dean's List (2021-Current)
- Member of SEDS (Students for the Exploration and Development of Space), AMSE (American Society of Mechanical Engineers) and SAE (Society of Automotive Engineers)

WORK EXPERIENCE

MECHANICAL ENGINEERING CO-OP

Schneider Electric, Cedar Rapids, IA — 06/2024-12/2024

- Implemented root cause analysis for the MCB (Miniature Circuit Breakers) line using Lean Six Sigma methodologies to improve product safety, reliability, and manufacturability.
- Created mission critical engineering solutions for the purposes of developing and maintaining next-generation energy storage and electrical safety devices using a variety of on-site testing tools, including component optimization using Creo and ANSYS Mechanical for higher efficiency and thermal stability.
- Optimized with cross-functional teams failure analysis methods including FMEA and Fault Tree Analysis to troubleshoot electrical and mechanical failures in power delivery systems and circuit breakers.
- Created and iterated rapid prototypes using AutoCAD and a multitude of machining tools, adjusting designs in response to test data and real-world performance feedback.
- Implemented thermal, magnetic, and ground fault testing and troubleshooting for circuit breakers and power distribution units using high amperage and high voltage on-site test equipment.

MECHANICAL ENGINEERING APPRENTICESHIP

Ciments Vigier SA, Péry-La-Heutte, Switzerland — 05/2021-08/2021

- Conducted daily maintenance and reliability engineering for heavy mechanical systems in a high-demand manufacturing environment for the purposes of developing cement.
- Designed and analyzed technical CAD drawings using Autodesk Fusion, ensuring compliance with project specifications and constructability standards.
- Implemented and oversaw welding, metal fabrication, and mechanical system installation to ensure compliance with Swiss net-zero laws and emission standards.

PROJECT EXPERIENCE

XPRIZE RAINFOREST COMPETITION — 09/2023-Current

- Team Lead for Power Management, responsible for designing and implementing a sustainable power distribution system for remote deployment in the Amazon rainforest strategically using the Brazilian power grid and diesel generators.
- Integrated and optimized battery systems to supply continuous power for autonomous drone operations, balancing capacity, weight, and thermal performance in field-ready prototypes.
- Trained and integrated Birdnet AI using Python into our drone systems to optimize performance and reliability in harsh environments and recognize animal calls for the purposes of promoting biodiversity.

ILLINOIS TECH ROCKETRY — 09/2023-Current

- Led payload department for high-altitude rocketry competitions, developing a thermal management system capable of maintaining biological payloads at 37C° at extreme altitudes (up to 30,000 ft).
- Conducted FEA and CFD analysis on ANSYS Mechanical and ANSYS Fluent to model aerodynamic loading, heat transfer, and internal temperature gradients.

MARINE ENERGY COLLEGIATE COMPETITION — 08/2025-Current

- Architected the development of an advanced point absorber marine energy device prototype as part of the DOE-sponsored Marine Energy Collegiate Competition.
- Created a custom PCB board with electrical and software teams to integrate a functioning power take-off system and optimize product performance.
- Implemented hands-on prototyping and testing methods for electrical protection systems using 3D printers and AutoCAD, published methods for high-volume production of power modules and energy storage components for future team reference.
- Designed and tested power generation and structural support components for the point absorber prototype under DOE supervision.

SKILLS

Technical:

- Autodesk Fusion | Autodesk Revit | Creo | Solidworks | ANSYS Fluent (CFD) | ANSYS Mechanical (FEA)
- Python | MATLAB | C++ | Ardiuno/Raspberry Pi Programming and Design | PCB Board Design | AI training and integration
- Stress Analysis and Simulation | SCADA | Switchboards | Fluid Dynamics | Control system analysis | Battery Design | FEA
- Excellent technical writing skills | Adobe Photoshop | Microsoft Office Suite | Google Workspace
- Experienced using CNC Machining, mills and lathes, soldering, 3D printing, laser engraving, and basic carpentry tools
- Team lead experience in multidisciplinary projects; effective communicator under fast-paced, high-stakes conditions
- Engineer in Training Certification (EIT)

Languages: English, French, Basic knowledge in German