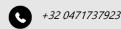
Hans Braumann

Master of Science Electro-Mechanical Engineer







EDUCATION

August 2016-May 2021

Pennsylvania State University

Bachelor of Science:

Electro-Mechanical Engineering

Certificates: AUTOCAD Certificate

August 2021-May 2024 **Linköping University**Master of Science: **Mechanical Engineering**Focus on Solid Mechanics

SKILLS

Mechanical Engineering:

FEA, Design/Structural Optimization, Vibration Analysis, Damage Mechanics and Life Analysis, Thermodynamics, Fluid Dynamics, Continuum Mechanics, Rigid Body Dynamics, Material Science, Mechanical Drives, Mathematical modelling of Mechanical Systems

Electrical Engineering:

Circuit Design & Theory, Electrical drives, PLC, System Control Theory, Oscilloscope Usage, Mathematical Modelling of Electrical Systems, Digital Logic

Modelling Software:

Ansys, AutoCAD, SolidWorks, Solid Edge, CREO Parametric, Multi View, Fushion360

Misc. Computer Software:

MATLAB, Simulink, Ansys, ParaView, Hopson, LabView, Multisim, ControlDesk, dSPACE, Factory Talk SE, Mastercam, GIS, Code Composer Studio, Office Suite, Studio 5000

ACADEMIC PROJECT EXPERIENCE

Italian Institute of Technology (iiT - Center for Robotics and Intelligent Systems)

Optimization of triboelectric energy harvester

January 2024 - June 2024

- Collaborative research of triboelectric energy harvester in collaboration with Italian Institute of Technology
- Conducted vibration analysis to gain better understanding of mechanical movement and electrical output relationship in regards to modal frequencies
- Redesigned artificial leaf to optimize electrical output using GA optimization
- Designed dynamic FEA code in MATLAB to be used in conjunction with optimization code
- Fabricated and tested new designs
- Sifted through experimentally obtained data

Fluid-Structure Interaction Analysis & Optimization September 2023 - December 2023

- Designed and optimized hydraulic valve
- Formulated FSI problem as well as optimization problem for valve
- Achieved a maximum allowable pressure drop and deformation using the optimization
- Worked on code to perform FEA & CFD on high-performance computer
- Translated optimized design into CAD

Autonomous Bioreactor

August 2019 - May 2021

- Researched current methods of growing algae for optimal production
- Designed grow chamber / frame to hold bioreactor, used mathematic methods to ensure stability
- Coded PLC to keep chamber environment within optimal temperature, pH level, and light using multiple sensors and actuators
- Designed an easy-to-use touchpad interface to allow for on the fly changes to the chamber's adjustable parameters such as temperature, pH level, and light intensity
- Used simple chemistry to help aid the grow chamber in staying at optimal pH level
- Wired entire system

Coding Languages:

C/C++, MATLAB, G Code, Ladder Logic, Structured Text, Sequential Function Chart, Function Block Diagram, TivaWare, HTML, JavaScript, CSS

INDUSTRY EXPERIENCE

New Product Development Engineer Intern

June 2021-August 2021

Emerson ASCO, Florham Park, NJ

- Designed new model of actuator to control airflow into Cummins VGT Turbo
- Used thermodynamics & fluid-dynamics to ensure cooling chamber worked optimally
- Used gear statics to design gear box to ensure effortless function
- Created semi-working prototype
- Designed experiments, then implemented them to find a way to improve manufacturing process for product

Electrical Engineer Intern

June 2020-August 2020

Communication Devices Inc., Boonton, NJ

- Designed and implemented testing device used to test newly created circuits
- Trouble shot and corrected malfunctioning circuits

Power Engineer Intern

June 2019-August 2019

American Electrical Testing Co., Boonton, NJ

- Redesigned switchgear circuitry to accommodate new components at power generating station
- Performed point-to-point checks on multiple different sub and power-generating stations
- Field visits to create new wiring diagram after changes were made to substations

Project 5000 Engineer Intern

May 2018-August 2018

Schindler Elevators, Morristown, NJ

- Overlooked how-to manuals and corrected them according to new information
- Called project site locations to ascertain progress info as well as update supervisors
- Created circuit schematics
- Created several new excel worksheets as well as worked on pre-existing ones
- Created presentations for monthly project update meetings

Valve Lab Engineer Intern

June 2017-August 2017

Emerson ASCO, Florham Park, NJ

- Assembled prototype valves and set up test stations test data monitoring and gathering
- Tested electrical and mechanical valve components
- Set up customized test stations to experiment with new products