

Patrick Ottavio Harsono

815-662-8018 | harsono2@illinois.edu | www.linkedin.com/in/patrick-harsono-614151202 | patrickhars.github.io

EDUCATION

University of Illinois at Urbana-Champaign, Champaign IL
Bachelor of Science in Mechanical Engineering

GPA: 3.97 /4.00
Expected: May 2024

Courses: Design for Manufacturability, Thermodynamics, Fundamentals of Fluid Dynamics, Engineering Materials, Mechanical Design, Dynamics of Mechanical Systems

SKILLS

Application Software: SolidWorks, Fusion360, Creo, MATLAB, Simulink, aPriori, Unity

Programming Languages: Python, Julia, HTML, CSS, C++, JavaScript

Hands-on skills: 3D Printing, Laser Cutting, Hand Power Tools, Machining, Wood Working

Languages: English, Indonesian, Chinese

PROFESSIONAL EXPERIENCES

GreenTree – Remote
IT Intern

May 2021 – July 2021

- Developed GreenTree's official website (www.greentree.group) with HTML, CSS, and JavaScript.
 - Created the website in both Chinese and English to promote the company globally.
- Compiled past projects and data to create an investment portfolio for potential investors.

PT. Aneka Coffee Industry – Indonesia
Intern – Research & Development

June 2019 – July 2019

- Designed a closed loop waste treatment process for optimization.
 - Recorded BOD and COD of wastewater for quality insurance and testing.
 - Proposed the use of enzymatic reactions from archaeon to convert spent coffee grounds to lactic acid.
- Analyzed the composition of coffee grounds using mass spectrometry (ICP-MS) for quality insurance.

PROJECT EXPERIENCES

Undergraduate Researcher – Champaign, IL
Advanced Geothermal Energy Storage

January 2022 - Ongoing

- Modelled cooling curves of heated fluid to identify different formations.
 - Developed the code to solve heat equations with forward finite difference approach.
 - Validated the previous approach through Fourier Series with machine learning.
- Analyzed the different well properties from real well log data to find suitable locations for energy storage.
- Compiled literature pertaining to power generation from thermal energy storage.
- Modelled power calculations based on different fluid temperature and rock formations.

Illini Formula Electric – Champaign, IL
Drivetrain & Software Member

August 2021 – Ongoing

- Redesigned gear connections on the gearbox and hub on Solidworks.
 - Performed FEA to optimize the factor of safety and weight of the components.
- Machined and assembled gearbox components to be fitted onto the car.
- Coded a 4-WD torque vectoring system on Simulink to improve the cornering of the vehicle.
 - Created the code to allocate torques on each wheel based on real-time yaw rate.
 - Designed a slip control mechanism and added shutdown safety features to the system.

ACHIEVEMENTS & LEADERSHIP

2nd Winner, University of Ottawa AutoCAD Designathon (Ocean Filtration System)

March 2022

Logistics Committee, Illinois Design Challenge

February 2021 – Ongoing

Course Assistant, Introduction to Dynamics (TAM 212)

January 2022 – Ongoing

2nd Winner, University of Ottawa AutoCAD Designathon (Wave-Powered Generator)

March 2021

Volunteer, Taught A-Level/IGCSE Math, Physics, Chemistry, and ICT – Indonesia

October 2018 – May 2021

President, BBS Robotics Club – Indonesia

June 2019 – May 2020

Second Place, MakeX Robotics competition – Shenzhen, China

December 2019