

Patrick Herke

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EDUCATION

Louisiana State University (LSU), Baton Rouge, LA

May 2023

Bachelor of Science, Mechanical Engineering

GPA: 4.14

Minors: Spanish and Robotics

Related Coursework: Fluids, Machine Design, Thermodynamics, Dynamics, Strengths of Materials, Differential Equations; Physics (Mechanics; Electricity & Magnetism), Sophomore Design, and Spanish (Intermediate).

EXPERIENCE

Mechanical Engineering Intern, Maintenance Department

May 2021 – Aug 2021

W. R. Grace & Co., Baton Rouge, LA

- Identified a material incompatibility between plate material and process slurry for a filter press. Eliminated a yearly expense of ~\$27,000 (replacing plates every 3-5 months) by a one-time expense of ~\$65,000.
- Converted ~8,000 documents from pdf to word and extracted data using OCR, Regular Expressions, and Adobe.
- Wrote a guide for an unused tool in the document management system that aids in analyzing pump failure trends.
- Modeled 3 pressure vessels and performed code calculations using the software package Compress.
- Identified inventory deficiencies of rupture disks by locating and photographing all disks in use at plant.
- Performed weekly safety observations and 1 permit audit.

Research Assistant

Sep 2019 – Present

President's Future Leaders in Research (LSU), Baton Rouge, LA

- Working at Innovation in Control & Robotics Engineering lab (iCORE) – Dept. Mechanical Engineering.
- Developing a cervical collar with reduced range of motion and improved fit & patient comfort.
- Responsible for research, purchasing, prototyping, and testing involved in achieving project goal.
- Presented current progress to faculty judges and fellow students at LSU Discover Day 2020 and 2021.
- Modeling of collar designs in Solidworks and prototyping via 3-D printing

Violist

Aug 2013 – May 2020

LSU Orchestra, Louisiana Youth Orchestra, & Baton Rouge Magnet High School (BRMHS)

- Learned the value of consistent daily practice.
- Worked closely to help reduce each other's weaknesses and their resulting impact on the music.
- All State Orchestra (2016, 2017 [2nd chair], 2018 [3rd chair]).
- Special performance venues: Carnegie Hall; Chicago Heritage Festival; Raising Cane's River Center.

Pool Swim Coach & Life Guard

May 2015 – Aug 2020

Magnolia Woods Pool and Racquet Club, Baton Rouge, LA

- Enforced pool rules to ensure patron safety & supervised kids (kids 7+ could stay by themselves).
- Actively corrected each swimmer's strokes; continued a 20-plus year winning streak at City Meet.
- Created personalized drill sets to help address each swimmer's particular issues.

Science Fair Competitor

Aug 2015 – Jan. 2017

Louisiana Science & Engineering Fair (Region VII), Baton Rouge, LA

- Data from one project was a critical component of research published in a scientific journal (Strategies for Genomic DNA Extraction from Laser Ablation of Localized Tissue Regions, 2017).
- Other projects assisted with improvements to protocols for LSU Genomics Core Facility (2015, 2016).

SKILLS & ACTIVITIES

Software: Solidworks, Matlab, Maple, Python, C, Compress from CodeWare, Archicad, Microsoft Office.

Language: Fluent in Spanish (Spanish Immersion Program Kindergarten-8th grade).

LSU: Ogden Honors College, Tiger Racing Formula, Bengal Robotics, Rock Climbing Club, LSU Ballroom, Water polo.