

Timmy Spencer

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CARRER PROFILE

Mechanical engineering candidate well-rounded with strong electrical and programming skills. Curious, analytical mind with a lifetime of experience independently learning new technologies and concepts to solve real-life, complex problems. Proven leader with project background demonstrating both independence and cooperation in the design, manufacturing, and interfacing of basic machines, electro-mechanical systems, and programs in a time-efficient manner under challenging and stressful conditions. Passionate about all things engineering, math, and physics.

Software: SOLIDWORKS, Mathcad, AutoCAD, Inventor, Fusion 360, ANSYS, MS Office, Blockpad, SketchUp

Programming: Python, MATLAB, Arduino, VBA for Excel, LabView, Simulink

Manual Skills: Hand Tools, Power Tools, Shop Tools, Measuring Instruments, Forklift Operation, Soldering

Previous/Slight Knowledge: C/C++, MIG Welding

EDUCATION

BAYLOR UNIVERSITY

WACO, TX

- Bachelor of Science in Mechanical Engineering (BSME)
- Minor in Mathematics

August 2019

WORK EXPERIENCE

Applications Engineer & Service Engineer – *Champions Machine Tool Sales*

May 2021-Present

- Aided customers with CAM programming, setting up, and running Haas CNC machine tools
- Designed and programmed custom parts for machine demos
- Diagnosed and repaired Haas machines using alarm codes, mechanical/electrical reasoning, and documentation
- Absorbed practical applications of engineering knowledge by being hands-on with different subsystems of machines

Design Engineer – *Box Gang Manufacturing*

October 2019-March 2020

- Measured, documented, and modeled dozens of product models with AutoCAD and Inventor
- Reconciled ideal manufacturing specifications with real life inconsistencies
- Produced dozens of engineering drawings of product models
- Created a library of sub-assemblies to be more efficient in the production of engineering drawings
- Collaborated with customers to produce custom models and drawings accounting for their specifications

Mechanical Engineering Intern – *National Oilwell Varco*

Summer 2018

- Programmed and optimized pressure-drop calculator in VBA for Excel used by employees and customers globally
 - Created 3000+ word technical documentation including instructions for amending and using calculator
 - Designed calculator to be future-proof and easily amendable for future employees after internship
 - Rehired for remote work during subsequent school year to add further capabilities to calculator
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PROJECT EXPERIENCE

Mechanical, Electrical, and Software Engineer – *qBot (an ongoing passion project)*

Spring 2022-Present

- Devised idea for fun, differential-drive robot with a clear progression roadmap to exercise engineering skills
- Created a constraint and requirement list and performed calculations to spec out motors, drivers, batteries, etc.
- Modeled each part with SOLIDWORKS and 3D printed test fit pieces for tolerances before printing final parts
- Implemented a unicycle model with an Arduino and wrote a Python script with matplotlib to estimate responses
- Currently working on adding more complex features like an arm, air gun, ROS integration, vision, cooling, and more

Design Lead – *Drop Tower for Microgravity Research*

Spring 2019

- Designed and fabricated interface solution for DAQ electronics and pre-existing release system
- Optimized existing mechanisms to achieve resultant acceleration on study volume of $0.01 * 9.81 \text{ms}^{-2}$ for 1.5s
- Fulfilled RFP requirements to reduce pre- and post-drop procedure times by 50%
- Analyzed performance using IMU data, identifying quality impacts from drag, vibrations, and other effects

Mechanical Lead – *Arbitrary-Vertically-Oriented-Path Following Robot*

Fall 2017

- Led team of 6 in designing and fabricating Arduino-controlled robot to move unrestrained dowel rod through path
- Designed and implemented hardware and code for path recognition and lift subsystems
- Managed the interfacing of different subsystems, facilitating understanding between different specialties
- Performed approximately 60% of team's electrical engineering and programming tasks