Collin T. Nelson

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SUMMARY

Practical third-year mechanical engineering student with robotics, additive manufacturing, and traditional manufacturing experience. Passionate about engineering with several large individual and group projects completed, including designing and building a large format desktop 3D printer and over 1000 hours designing and fabricating competition robots for the FIRST Robotics Competition.

EDUCATION

North Carolina State University, Raleigh, NC — Graduation: May 2022

BS Mechanical Engineering — GPA: 4.0/4.0

Relevant Coursework: Engineering Controls, Engineering Solid Mechanics, Engineering Thermodynamics, Engineering Fluid Mechanics, Engineering Dynamics of Machines

TECHNICAL SKILLS:

Solidworks, Matlab, Autodesk Inventor, Fusion 360, CNC machining, 3D Printing, Robotics, Prototyping, Debugging, Engineering Design Process, Design for Manufacturability (DFM), Basic Python

EXPERIENCE

Undergraduate Research Assistant, Center for Additive Manufacturing and Logistics — October 2019 - Present

- Program and operate Haas CNC to finish 3D printed copper, stainless steel, and titanium parts and make aluminum and steel machine components and fixtures
- Work with grad students to produce printed parts for other research groups and to evaluate machine abilities.

Undergraduate Research Assistant, Ecological Personal Rapid Transit — October 2018 - June 2019

- Part of a team that designed and fabricated autonomous, electric vehicles for a startup on campus

PROJECTS

Robot in Three Days, FIRST Alumni Association — November 2019 - Present

- With a team, planned and executed a three-day robot build to share our knowledge and experience with high school teams competing to solve the same challenge in six weeks

Engineering Application Club — October 2019 - May 2020

- Designed a CNC as part of a team- my group was responsible for the spindle drive, including rotary force and fluid interfaces to depress the spindle drawbar for tool changes and pass coolant for through-spindle coolant

ASME Innovative Additive Manufacturing 3D Challenge — September 2019 - March 2020

- Designed and 3D printed a drone using principles of design for manufacturability to race against other collegiate teams in picking up and transporting cargo around a gated course

ASME Student Design Competition — September 2019 - March 2020

- Designed a robot, as part of a team, to build a paper tower judged for height, strength, and speed

FFF 3D Printer — April 2016 - June 2018

- Independently designed and built a 3D printer using self-taught engineering concepts, gaining experience with rapid prototyping, electronics, machining, thermoplastics, software and controls

LEADERSHIP

Officer/Treasurer, FIRST Alumni Association — May 2020 - Present

- Work with other leaders to apply for grants, plan and execute fundraisers, create and manage a budget and develop more outreach opportunities to benefit K-12 students

Build Lead, Robot in Three Days, FIRST Alumni Association — December 2020 - February 2021

- Lead the team that analyzed the challenge presented, designed a robot to efficiently address each facet of the challenge, built the robot, and iteratively improved it coordinating with remote programmers, in three days

Quartermaster, Robot in Three Days, FIRST Alumni Association — October 2020 - February 2021

- Sourced the materials and tools required ahead of the Robot in Three Days event and tracked inventory across multiple locations throughout the event

Eagle Scout Service Project — February - September 2017

- Planned, organized, and led the fundraising for and construction of a 100-square-foot, $2200 outbuilding for my high school's football concessions, earning Eagle Scout