Xavier S. Johnson

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EDUCATION

University of Tennessee Knoxville

- Major: Mechanical Engineering | GPA: 3.33 | Senior | Expected Graduation Date: May 2024
- School Involvement: Lead Ambassador for UTK Engineering Professional Practice

RELEVENT WORK EXPERIENCE

Product Design Engineer Intern May 2023 – Aug 2023
Amazon Lab 126 Sunnyvale, CA

- Designed parts in CREO and prototyped different mechanisms to create a universal debug fixture, worked around pogo pins, PCBA, FPC flex cable, springs, various design constraints and DFM feedback to develop an innovative solution
- Performed rapid 3-D prototyping and started a D.O.E to ensure design was feasible, user friendly, and parts worked as intended
- Created plastic injection molded and sheet metal parts to house electrical assemblies, worked cross-functionally with electrical, software, and tooling engineers, and CMs / External Vendors to develop a solution that met the specified design requirements
- Performed a FEA contact analysis in CREO Simulate to perform study on removable snaps, measured required force to remove and insert snaps also created a D.O.E to optimize the cantilever length, lead in/out angle, and width of snaps.

Hardware Development Engineer Intern May 2022 – Aug 2022
Amazon Lab 126 Sunnyvale, CA

- Researched into an in-field issue and worked with failure analysis, thermal engineers, and technicians to develop an innovative solution and analyze data received from experiments
- Created a component level test with thermal aging to test the thermal stability of various materials
- Designed, prototyped, and created drawings for a test rig adapted from various literature in CREO
- Revised product level validation test to match use case environment using Arrhenius model and customer data

Mechanical Engineering Co-op May 2021 – Jan 2022
Siemens Healthineers Knoxville, TN

- Created a tolerance stack-up to find angular displacement between two parts to ensure the misalignment of the belt drive of the Patient Handler System (PHS) was in allowable range
- Assisted development engineers in building and testing the Patient Handler System through life cycle, thermal imaging, and acoustic tests. Also assisted in prototyping and designing sheet metal parts in Siemens NX 12 in order to improve safety/patient experience
- Performed machine design calculations to ensure components of PHS had allowable safety factors, allowable angle misalignments, and to find areas to improve such as using new materials, editing tolerances on drawings, and using new components

Quality/Design Engineer Co-op August 2020-Jan 2021
Bosch Home Appliances Oak Ridge, TN

- Designed different parts using principles of plastic part design in NX 12 and used 3-D printing to rapidly prototype parts
- Developed a Python script and a GUI that communicates to Home Connect API Simulators and can change settings of refrigerators
- Designed parts for refrigerator assemblies and drafted new refrigerator assemblies in NX 12 and Teamcenter PDM
- Assisted quality engineers in developing a data analytical software program in Excel to reduce time sorting through failure symptom data and filter necessary information

UNDERGRADUATE RESEARCH

Undergraduate Research Assistant (Additive Manufacturing) February 2022 – May 2022
University of Tennessee Knoxville, TN

- Assisted in researching the material transitions of Carbon Fiber reinforced ABS to non-filled ABS made by a dual hopper extruder
- Prepared samples for analysis by using diamond saw, drying materials using heat oven, using chemical solvent and ultrasonicating to break down material, then filtering the sample under fume hood. Performed strength testing on samples using a DMA

Undergraduate Research Assistant (Surgical Robots) February 2021 – Sep 2021
University of Tennessee | Robotics Lab Knoxville, TN

- Assisted in researching the use of robotic camera systems in minimally invasive surgeries (MIS) and in designing components of a product that uses a six DOF manipulator and other electrical components (SOLIDWORKS)
- Developed innovative housings to secure PCB, MC board, antenna and electronic modules in a fully enclosed environment while creating new methods to connect the housing to a force torque sensor and an actuator assembly, in process of getting patent for design
- Improved actuator assembly by making the EPMs and micromotor easier to insert into housing, also created a method to connect this assembly to a part that houses multiple electrical components

PROJECTS

IEEE Robotics Club – SUMO BOT Spring 2021

- Created a "sumo bot", a robot that competes against other robots and attempts to knock them off a platform
- Created the robot for competition with a custom chassis, Mecanum wheels, an Arduino, driver boards, and a lever mechanism
- Created lever mechanism with wooden ramp to throw other robots off balance/undercut front wheels

Lazy Dog Robot (Python Project) Spring 2020

- Developed code for a custom speaker that focuses on appealing to the mental health of students and assists them in daily life.
- Created a speech recognition robot in Python that can tell the weather by utilizing an API, say different phrases based on input, give the time and date, and send an email including various resources that are tailored towards engineer

SKILLS

Skills: SolidWorks, Siemens NX, CREO, Fusion 360, FEA (Nastran, CREO SIMULATE), 3D Printing, Data Analysis, GD&T