Yushai Canteenwala

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Work Experience

Microchip Technologies Inc. | **Process Engineer** | Lawrence MA   05/2022-Present
Lead process and yield improvement initiatives in diode devices production.
- Designed and executed sample experiments to rectify low voltage yields, resulting in nearly 30% increase in overall yields.
- Conducted root cause analysis to identify and resolve process issues, resulting in a 75% reduction in defective parts.
- Implemented multiple experiments to optimize profiles, reducing sealer maintenance cost while upholding cycle standards.
- Worked with cross-functional international teams to address customer build order issues and corrective actions to be taken.
- Improved mechanical and electrical device conditions through process refinement, material inspection, and fixture testing.
- Lead redesign initiatives for an automated solder machine, reducing repair costs of up to $1000 and repair times of up to 3 months.

Shark Ninja | **Advanced Development Engineering Intern** | Needham MA   06/2021-09/2021
Aided the R&D team on the development of Shark Odor Neutralizer Technology and Shark Hydrovac.
- Executed controlled sealed air exposure experiments on the odor neutralizer prototype, reporting a nearly 35% fragrance loss while inactive.
- Modeled and implemented a 3D-printed neutralizer container for suction and pressure adjustment in a testing rig.
- Improved the hydrovac prototype arduino code, resulting in a surface cleaning quality increase of 20% during tests.
- Performed root cause analysis on the hydrovac prototype nozzle, reducing brush roll vibration and belt slip by 60%.

UMass Lowell | **Materials Research Intern** | Lowell MA   05/2019-08/2019
Conducted characterization research on "SMART" thermally adaptive fibers.
- Integrated air temperature control in test system, allowing for adjustable temperature and rate for fiber force correlation.
- Prototyped multiple 3D-printed fiber housings for even fiber exposure to air and therefore, optimal force measurements.
- Automated temperature and force data collection per second into excel, streamlining analysis and reducing human error.
- Collaborated with lab peers and professor to interpret data and optimize testing parameters.
- Learned introductory heat transfer concepts through experimentation and analysis.

Skills

Software: SolidWorks, Excel, MATLAB, Simulink, Mastercam, ANSYS, AutoCAD, Python, Arduino, JMP, Onshape
Fabrication: Laser Cutting, 3D Printing, CNC Machine, Machine Lathe, Machine Mill, Drill Press, Power Tools
Analysis: Finite Element Analysis (FEA), DOE, Geometric Dimensioning and Tolerancing (GD&T), Root Cause Analysis
Material Inspection, Manufacturing Process Improvement, Rapid Prototyping, Product Design, Concept Development
Eagle Scout

Projects

Capstone | Microelectrode Insertion Tool
Moves a microelectrode probe in 1mm increments for neural testing within a specimen's brain.
- Contributed to design brainstorming for gripper movement synchronization given a single manual knob input.
- Developed the considerations and constraints and design iteration records for the project.
- Performed mathematical analysis for clamping force applied on the probe by the tool's grippers using excel.
- Presented the project and demonstrated the completed physical tool during capstone showcase with my team.

Robot Benchmark Challenges
Online robot programming simulation challenges designed to utilize python code to accomplish a task.
- Developed and implemented Simulink and Python PID code to repeatedly exceed a crucial benchmark of 1 min in the inverted pendulum epuck challenge and sub 12 sec. pick and place Kukabot challenge without cheating.
- Accomplished the randomized avoidance benchmark and presented analysis of the challenge, robot, constraints, and code annotation in a YouTube video.

Design Captain | UML Concrete Canoe
University teams create canoes made from concrete for project presentations and races hosted by the ASCE.
- Designed the 2019 and 2020 canoe in Solidworks and the canoe CNC mold path in MasterCAM.

Education

University of Massachusetts Lowell | Lowell MA   12/2021
B.S. Mechanical Engineering
Passed Fundamentals of Engineering Exam (EIT)   04/2023
Dean's List