PARTH SATISH AMRAPURKAR

980-205-5536 | pamrapurkar@gmail.com | www.linkedin.com/in/parthsa

SUMMARY

Mechanical Engineer with a master's degree and 3+ years of experience in product design and development. Experience in product development (concept, prototyping to manufacturing, and realization). Proficient in project management, CAD, CAE – FEA & CFD, 3D printing, and manufacturing with extensive technical knowledge. Proven record of creating cost-effective designs through integrating DFM, DFA & DFMEA techniques. Excellent communicator with a record of saving costs by negotiating contracts with suppliers and customers. Skilled to work in a collaborative environment.

TECHNICAL SKILLS

Product Design | CAD | Blueprints | SolidWorks | 3D Modeling | FEA – ANSYS, ABAQUS | CFD – FLOEFD | GD&T ASME Y14.5 2009 | 3D printing | Troubleshooting | PTC CREO | MATLAB | Six Sigma | Python | CATIA V5 – Part design, Surfacing, cavity core, part simulation, assembly | MATLAB | RCA | SPC | AutoCAD | MS Office | Bill of Material | DFA | DFM.

PROFESSIONAL EXPERIENCE

- **Senior Engineer – Product design and innovation** April 2021 - Present
  Stanley Black and Decker, MD, USA
  - Designing a fan blower ground-up with **75%** power savings, **2x** output, and projected sales of over **150k/yr.** units.
  - Designed first in world concept of a track saw track reducing shipping space by **80%** and waste by more than **25%**.
  - Carried out tolerance stack-up analysis for designed components and assemblies.
  - Performed ray-tracing analysis of **LED** modules on smart speakers on Trace-pro software.
  - Designed Spyder-kicker and verified the design using **FEA** structural analysis for smart speaker line.
  - Performed **CFD** analysis to verify the flow pattern, temperature, pressure of fan systems.
  - Utilized **DFM**, and **DFA** techniques to design injection molded and aluminum extruded products.
  - Developed project timelines and stages from concept – planning – execution – performance – closure stages.
  - Collaborated with industrial design, marketing, software, and testing departments.

- **Design Engineer I** February 2021 – March 2021
  Caterpillar, Lafayette, IN, USA
  - Designing of mounts, fixtures, and components required for installation of 35L to 105L oil and gas engines.
  - Utilized **PTC Creo** for parametric 3D modeling of the designs and to create 2D drawings with proper GD&T.
  - Achieved 80% file reduction by creating installation drawings to meet the client's needs.

- **Graduate Research Assistant** October 2018 – January 2021
  UNC Charlotte, Charlotte, NC, USA
  - Developed a model for SLS metal **3D printing** using **SolidWorks** for **CAD** and DEM for **computation model**.
  - Implemented the design of experiments (**DOE**) to prioritize the study of different process parameters using **Minitab** and saved **80%** in computation time and costs. Prepared technical documentation for each step of the project.
  - Automated post-processing scripts on **Python** for analyzing and visualizing the extracted raw data.
  - Analyzed normal distribution/ bell curve of data to analyze in which SD the majority of the data/ values fall.
  - Developed **Finite element** model for analyzing gas arc welding process using Abaqus & Fortran software on HPC.

- **Design and Manufacturing Engineering Intern** May 2019 - August 2019
  nVent, Aberdeen, NC, USA
  - Incorporated laser length encoders achieving length accuracy up to 10 microns and waste reduction by **20%**.
  - Designed fixtures enclosures to hold high-precision lasers, performed heat dissipation analysis to confirm designs.
  - Developed test **protocols** for new material testing. Performed **troubleshooting** of mechanical & electrical systems.
  - Sourced new suppliers and negotiated contracts that saved more than **15%** of costs for machinery.
  - Incorporated vacuum system as the **5S** measure on manufacturing lines that saved **20%** in labor costs.

- **Design and Manufacturing Engineer** July 2017 - July 2018
  Badve Engineering, MH, India
  - Led a team for the design of a **sheet metal** forming press tool that increased muffler production by **37%**.
  - Created **ECN**s, **BOMs,** and work instructions and released designs and drawings using Windchill software.
  - Utilized **SPC** to pick point outliers in manufacturing data, applied **RCA** and **FMEA** to optimize the process.
  - Used **CATIA V5** for modeling punch and die system and 2D drawings with **ASME Y14.5 2009** standards.

- **Manufacturing Engineer trainee** May 2017 - June 2017
  HONDA Motors, KA, India
  - Identified and analyzed the in-process gap in body fender bolt's torque measurements vs compliance.
  - Facilitated **Kaizen** Rapid Improvement Events (RIEs), implemented improvements using **Six Sigma** principles.

EDUCATION

University of North Carolina at Charlotte May 2020
Master of Science (**M.S**) in **Mechanical Engineering** GPA - **3.44** / 4.0

Savitribai Phule Pune University July 2018
Bachelor of Engineering (**B.E**) in **Mechanical Engineering** GPA - **3.57** / 4.0

TECHNICAL PROJECTS

- **Axial fan blower**, Stanley black, and decker August 2021 - Present
  - Individually designed a FAN for job site blower. Performed parametric **CFD** analysis to study how different parameters of the fan affect the efficiency, horsepower, power usage, CFM output of the FAN.
  - Planned the project from the ground up, designed injection molded components for the fan system.

- **Temperature control system for 3D printer – PID control**, UNC Charlotte August 2019 - December 2019
  - Built a PID control system using Arduino to control an Aluminum block – extruder – used in an **FDM 3D printer**.
  - Developed a code in **Arduino C++** to connect the heater, fan, **MOSFET**, **LCD** screen displaying the temperature with one another to communicate for temperature control.

- **Temperature analysis of a plate**, UNC Charlotte October 2018 - December 2018
  - Performed a temperature analysis study of a 2D plate by developing a **MATLAB** code from scratch.
  - Adopted implicit and explicit methods along with ADI code implementation to simulate and study temperature variation in the model. Analyzed the results by creating temperature evolution 3D graphs.

CERTIFICATIONS & CONFERENCE

- Discrete Element Modeling of Scraping Process and Quantification of Powder Bed Quality for SLM, **ASME 2020 15th IMSEC** (https://asmedigitalcollection.asme.org/MSEC/proceedings-abstract/MSEC2020/V001T01A037/1095621)
- GD&T and Engineering Drawings (LinkedIn)
- Design for Additive Manufacturing and 3D printer troubleshooting (LinkedIn)
- Rapid prototyping for Product Design (LinkedIn)

LEADERSHIP

- Teaching assistant / Class head for 70+ students teaching applied physics experiments. Jan 19 - May 20
- Led a team of 10 for organizing technical events in CAD using CATIA and SolidWorks. Jun 15 - Jan 18

HOBBIES

Designing components for self-use and 3D printing them | DIY | Photography | Hiking | Reading.