Ashish Pokharel
Mechanical Engineer, E.I.T

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Professional Profile:

Mechanical engineer with 5+ years of hands-on experience with product development and engineering design in fast-paced and multi-disciplinary settings. Passionate about personal/professional development, fostering collective growth and tackling complex challenges using creative and efficient solutions for the improvement of human lives.

Education:

The Cooper Union
M.S Mech. Eng (2019)
B.S Mech. Eng (2017)

Skills:

CAD
SolidWorks
3D Experience
AutoCAD
Mastercam
RapidForm (Geomagic)
ANSYS (CAE)
FLUENT (CFD)
Hypermesh
DFA
DFM

Rapid Prototyping
CNC Milling (Haas)
G-code Generation
3D Printing (SLA/FDM)
Laser-cutting
Turning (manual lathe)
Drill Press

Quality
cGMP
ISO Standards
Technical Writing
MasterControl
Lab Notebook (GDP)

General
Microsoft Office Suite
Windows
MATLAB
Python

Hobbies:

Fantasy Writing
Hiking/Trail Running
Spartan Races
Martial arts
Meditation

Work Experience:

EpiBone, Jersey City, NJ
Mechanical Engineer   January 2020 – Present

- Develops EpiBone's tissue-maturation system and subsystems from conception to use in the cGMP production of a class III bio-engineered cartilage graft with FDA IND approval for a first-in-human phase I/IIb clinical trial.
- Leads the iterative design process for developing and testing graft geometries, perfusion bioreactors, and mechanical loaders using CAD, CAM, DFA, and DFM.
- Achieves aggressive project timelines utilizing rapid prototyping methods including but not limited to CNC machining, SLA 3D printing, laser cutting, and supplementary machine shop equipment.
- Developed the product life management process to ensure traceability through rapid design iterations by utilizing SolidWorks 3DExperience and quality documents such as "Work Instructions" and "Design History Files".
- Optimized perfusion bioreactor design using CFD simulations to successfully grow bone and cartilage grafts suitable for human implantation.
- Designed and tested the bioreactor and electro-mechanical loading systems with real-time graft monitoring features and micron-precision mechanical graft loading.
- Utilized best milling practices to improve part precision and to achieve an accuracy of 50 microns for non-homogenous trabecular bone.
- Authors, revises, and releases documentation for quality management system (QMS) files including protocols, reports, IQ/OQ/PQ, and batch records.
- Co-inventor on two filed IPs (pending): "Bioreactor system for maturation and maintenance of osteochondral tissue" and "Bioengineered cartilage for rhinoplasty composition, method, and apparatus".

Mechanical Design Engineer   September 2019 – December 2019

- Generated CAD designs, g-code, 3D print files, and bioreactor components to fabricate patient-specific jawbone grafts for the first-in-human phase I/IIa clinical trials to implant 6 patients with tissue-engineered bone successfully.
- Used CNC mill and 3D printed jigs to machine bone into anatomic geometries.
- Generated designs of silicone insert to perfuse and sterilely secure bone grafts.
- Optimized insert flow channels using CFD to deliver ideal flow rates for growth.
- Designed and 3D printed molds to cast silicone inserts.

Totem Power, Bedford Hill, NY
Mechanical Engineer   July 2017 - January 2018

- Used SolidWorks to generate models and technical drawings of the Totem Tower.
- Conducted thermal analysis of various compartments of the Totem Tower to assess airflow and temperature gradients using ANSYS, Hypermesh, and FLUENT.
- Utilized simulation data to determine optimal locations to place 200 CFM fans to cool the air inside the unit to operable temperatures.