Anil Siva Kumar Mekala

Norristown, PA
+1 (412)-251-9775 | anm636@pitt.edu | linkedin.com/in/anil-siva-kumar-mekala | Certifications | Portfolio

Summary

I am a certified SolidWorks professional with 5+ years of experience in the medical device industry. I am good at designing implants and instruments for trauma systems and developing products from concept to completion. Experienced in manufacturing processes, as well as design verification and validation. Familiar with quality systems and regulatory requirements, including ISO13485 and FDA standards. Passionate about innovation and delivering advanced solutions to improve patient care. Adept at collaborating with surgeons, engineers, and cross-functional teams to translate clinical insights into practical designs.

Education

University Of Pittsburgh Dec 2024
M.S in Biomedical engineering and Bioengineering - Medical product Engineering (MPE)

MVGR College of Engineering May 2017
Bachelor of Technology in Mechanical Engineering

Experience

Senior Product Design Engineer Apr 2021 – Jun 2023
Kmedika Solutions Pvt. Ltd.

- Led multiple R&D projects with full ownership of project management activities, resulting in a 20% improvement in project completion efficiency.
- Developed and implemented project plans, timelines, and task assignments, ensuring adherence to milestones and deadlines, resulting in a 15% reduction in project delays.
- Communicated project progress and milestones to senior leadership through daily/weekly/monthly updates, facilitating informed decision-making and strategic alignment.
- Ensured that project issues and risks were effectively communicated to associated team members for timely resolution.
- Mentored and guided junior engineers, improving design quality and productivity through effective feedback and skill development.

Product Design Engineer Apr 2019 – Apr 2021
Kmedika Solutions Pvt. Ltd.

- Gained in-depth knowledge of Anatomy, surgical approaches, and surgical procedures
- Developed an understanding of various manufacturing processes such as CNC Machining, Injection Molding, Additive Manufacturing, and Wire EDM, etc.
- Conducted competitor analysis and market research, identifying key market trends that led to an 18% increase in new product adoption rates.
- Prepared Design History File (DHF) for an FDA inspection.
- Generated innovative concepts, their 3D models, and 2D drawings using SolidWorks according to ASME Y14.5M-2009.
- Conducted IP searches to ensure the uniqueness of product designs, preventing potential legal issues related to patent infringement.
- Performed Tolerance Stack analysis on implants and instruments under development to identify the worst-case assembly and functionality scenarios, reducing assembly errors.

Skills

Technical: SolidWorks, Creo, Ansys, Autocad, GD&T (Geometric Dimension and Tolerance), DFM (design for manufacturability), DFA (design for assembly), and DFU (design for usability)
Prototype & Fabrication: : 3D Printing, Laser Cutting, Rapid Prototype
Programming: Arduino IDE, Python, MatLab
Quality Management: ISO13485, 21 CFR 820, DHF (Design History File)
Collaboration & Productivity Tools: Microsoft office Suite (Word, Excel, PowerPoint, Outlook), TeamGantt, Slack

Projects

Ankle Fracture and Fusion | *Client: Kognitus LLC,* ***Medline Unite***

- Designed and developed low-profile plate implants for Ankle fractures. Designed a Plate Inserter that works with all the plates in this system.
- Guided and Designed Ankle Fusion System Consisting of Fusion plates, screws, and respective instruments.
- Designed a Targeting guide for Short talar and Anterior TT plates that precisely places a tibiotalar crossing screw.

Mid Foot Fracture | *Client: Kognitus LLC,* ***Johnson & Johnson***

- Designed the TriLeap lower extremity anatomic plating system, incorporating a low-profile design promoting easier surgery access.
- Designed locking and non-locking screws for micro, mini, and small plates to ensure secure fixation across various anatomical structures.

Bicortical Fixation | *Client: Kognitus LLC,* ***Vilex***

- Designed and developed a toggle screw for bicortical fixation, which improves pullout strength and enhances fracture compression.
- Compare the implant with a partially cannulated cancellous screw and perform a 4-point bending analysis using ANSYS to optimize the design for better performance.

Nitinol Staple | *Client: Kognitus LLC,* ***Medline Unite***

- Designed and developed Staple bone implants, implant insertion mechanism, and instrumentation for Akin procedures for foot bone fusion operations with a minimal amount of surgeon effort.
- Perform a 4-point bending finite element analysis using ANSYS concerning ASTM Testing standards on the implant to determine the worst case and compare it with existing staples in the market. DHF was created for FDA clearance.

Optimotion Blue Implants | *Client: Kognitus LLC,* ***Optimotion Implants***

- Worked with other engineers on creating knee replacement implants for osteoarthritis.
- Created drawings for instruments and Performed Tolerance Stack analysis to identify the worst-case assembly and functionality.

Volunteer Experience

Pennsylvania Robotics and Technology Fellowship | *NeuEsse Inc.* Jan 2024 – Mar 2024

- As part of a four-person team, I collaborated on developing a product roadmap and delivering optimal recommendations for enhancing shelf stability through chemical and biomechanical methods for a local biotech startup (currently under NDA).

X-Projects | *Medical Wire Torque Device* Jan 2024 – Dec 2024

- At the University of Pittsburgh, I collaborated on a project to design and test a novel wire torque device with two UPMC cardiologists for percutaneous vascular interventions. My role involved conducting literature reviews and IP analysis to ensure product uniqueness. I contributed to human-centered design activities, prototype iterations, and testing phases, working closely with clinicians to bring this invention to life. This experience strengthened my skills in medical device development and interdisciplinary teamwork (currently under NDA).

Certifications

SolidWorks Professional – *Mechanical Design (Credential ID: C-J4TKX6CYFN)*
SolidWorks Associate – *Additive Manufacturing (Credential ID: C-8T8KCHZYS6)*
SolidWorks Professional – *Advanced Weldments (Credential ID: C-WM49XKTL52)*
SolidWorks Professional – *Advanced Drawing Tools (Credential ID: C-YVKS8XRH69)*
Creo 2.0 – *(Credential ID: PTC202-0419)*
Human Center Design – *Luma Institute*
Product Development and Management Association - *PDMA Certification*