Mekala Anil Siva Kumar

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SUMMARY

I am a certified SolidWorks professional with four years of experience in the orthopedic medical device industry. I specialize in designing implants and instruments for Foot and Ankle systems and creating innovative medical devices. My proficiency in CAD tools and attention to detail has helped me convert imaginative concepts into practical solutions that are novel and cost-effective. My flexible, problem-solving, and highly motivated approach can bring tremendous value to any team.

EDUCATION

University of Pittsburgh, Swanson School of Engineering, Pittsburgh, PA
Master of Science in Biomedical engineering & Bioengineering- Medical product Engineering (MPE) **Apr 2025**

MVGR College of Engineering, Andhra Pradesh, India
Bachelor of Technology. in Mechanical Engineering **May 2017**

TECHNICAL SKILLS

- SolidWorks || AutoCAD || ANSYS || GD&T || Cura (3d Printing) || Arduino IDE || ISO 13485 || DFMA || DHF (Design history file) || Laser Cutting || Rapid Prototyping || Microsoft Office

WORK EXPERIENCE

Kmedika Solutions Pvt. Ltd., Hyderabad, India

Sr. Product Development Engineer, Research & Development -Trauma & Extremities **Apr 2021- June 2023**

- Lead for R&D projects with complete ownership of project management activities including project plans, timeline/schedule, task assignment, etc.
- Communicated project progress to higher leadership through daily/weekly/monthly updates.
- Ensured that project issues/risks were effectively communicated to each stakeholder and resolved within the team.
- Guided junior engineers with daily design reviews and providing feedback.

Product Development Engineer, Research & Development -Trauma & Extremities **Apr 2019- Apr 2021**

- Gained in-depth knowledge of Anatomy, surgical approaches, and surgical procedures.
- Developed an understanding of various manufacturing processes like CNC Machining, Injection Molding, Additive Manufacturing, Wire EDM, etc.
- Analyzed competitor products and operations to better understand the market.
- Prepared Design History File (DHF) for an FDA inspection.
- Generated innovative concepts, their 3D models, and 2D drawings using SolidWorks according to AMSE Y14.5M-2009.
- Performed IP searches to ensure the concepts developed didn't clash with any existing designs.
- Performed Tolerance Stack analysis on implants and instruments under development to identify the worst case of assembly & functionality.

PROJECTS

Mid Foot Fracture (Client: Kognitus LLC, Medline Unite)

- Designed implants and instrumentation for Intramedullary Jones Fracture Fixation, utilizing SolidWorks for precise solid modeling.
- Designed a Nitinol washer to create dynamic compression for Jones fracture using screws.
- Designed a Universal clamp for Jones Fracture that can be used single-handedly and helps to visualize implant trajectory and reduce alignment time.

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 partially cannulated cancellous screw and perform a 4-point bending analysis using ANSYS to optimize the design for better performance.

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 of this system.
- Guided and Designed Ankle Fusion System Consists 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.

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.

CERTIFICATIONS

- **SolidWorks Professional – Mechanical Design** (Credential ID: C-J4TKX6CYFN).
- **Creo 2.0 –** (Credential ID: PTC202-0419).
- PROFESSIONAL - Mechanical Design (anilsivakumarmekala.github.io)