# MEKALA ANIL SIVA KUMAR

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• Pittsburgh, PA

## PROFESSIONAL SUMMARY

I am a certified SolidWorks professional with four years of experience in the orthopedic medical device industry, specializing in designing implants and instruments for Foot and Ankle systems. In a dynamic start-up environment, I have honed my skills to empathize with patients' needs and clinical requirements, translating them into innovative medical devices. My proficiency in CAD system tools and attention to detail allows me to 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
***M.S in Biomedical Engineering & Bioengineering- Medical product Engineering (MPE*)** **May 2025**

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

## WORK EXPERIENCE

**Kmedika Solutions Pvt. Ltd., Hyderabad, India**

**Sr. Product Development Engineer** **Apr 2021- June 2023**

- 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/risks were effectively communicated and associated team members for timely resolution.
- Mentored and guided junior engineers, improving design quality and productivity through effective feedback and skill development.

**Product Development Engineer** **Apr 2019- Apr 2021**

- 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 a 20% 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 AMSE Y14.5M-2009.
- Participate in 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 by 15%.

## AREAS OF EXPERTISE

**Technical Skills:** SolidWorks | Ansys | Autocad | GD&T (Geometric Dimensioning and Tolerancing) | DFM | DFA | Creo | Fusion 360
**Prototype & Fabrication:** 3D Printing | Laser Cutting (sheet metal) | Rapid Prototype
**Programming:** Arduino IDE | Python
**Quality Management:** ISO13485 | DHF (Design History File)
**Collaboration & Productivity Tools:** Microsoft Office Suite (Word, Excel, PowerPoint, Outlook) | Gantt Chart | 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, 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, helps visualize implant trajectory, and reduces 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 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.

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## CERTIFICATIONS

- **SolidWorks Professional – Mechanical Design** (Credential ID: C-J4TKX6CYFN).
- **Solidworks Associate – Additive Manufacturing** (Credential ID: C-8T8KCHZYS6).
- **Creo 2.0 –** (Credential ID: PTC202-0419).
- Certifications: PROFESSIONAL - Mechanical Design (anilsivakumarmekala.github.io)