VIDHI PARMAR

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WORK EXPERIENCE

Nventric, Inc. **Arcadia, California**
Research and Development Engineer *Oct 2024 – Present*

- Led end-to-end development of a power-injectable PICC catheter system, including prototyping, V&V, and supplier collaboration; achieved 100% on-time Phase I and II completion, expediting project readiness for regulatory submission by 4 weeks.
- Defined and executed mechanical and functional test protocols (torque, tensile, kink, flow) using Mark-10 and custom jigs; validated methods for extrusion-based components and supported biocompatibility, packaging, and sterilization studies, enabling preclinical animal testing within 2 months.
- Created and maintained key design control documents (URS, PRS, DTM) and contributed to risk management tools (FMEAs), ensuring audit-readiness with zero major findings and full compliance to ISO 13485, 14971, and 21 CFR 820 standards.
- Drove cross-functional collaboration with R&D, Manufacturing, and Quality to implement process improvements and resolve product issues; corrective actions led to 25% reduction in prototype defect rates and improved supplier response times by 20%.
- Designed fixtures and prototyping tools using SolidWorks and 3D printing, optimizing part manufacturability and reducing build iterations by 30%; delivered weekly reports and technical presentations to leadership, strengthening project visibility and alignment.

University of Illinois at Urbana-Champaign **Urbana, Illinois**
Research and Development Engineer *Apr 2024 – Oct 2024*

- Designed and validated a CO_2 incubation system for live cell imaging by integrating Arduino Nano Every, sensors, and a 3D-printed enclosure; achieved 97% CO_2 regulation accuracy across 5-hour trials, enhancing system reliability for biologics.
- Developed Python-based GUI using PyQt5 and Picamera2 on Raspberry Pi, enabling automated image capture and processing, and improving imaging throughput by 25% for time-sensitive experiments.
- Fabricated and integrated custom enclosures, valves, and electronics for real-time testing; maintained stable 4.9%–5.1% CO_2 levels with 100% uptime, ensuring safe conditions for live cell assays.
- Resolved system-level issues involving CO_2 fluctuation and imaging drift, leading to 15% gain in accuracy and operational efficiency through iterative testing and root cause analysis.
- Applied principles of DFM and system reliability engineering to optimize design for sustained lab use, aligning the prototype with medical research and diagnostic device expectations.

Graduate Teaching Assistant *Aug 2024 – Oct 2024*

- Mentored 10+ graduate students on medical device development and regulatory compliance, resulting in 25% improvement in project clarity and milestone completion rates through structured one-on-one coaching.
- Guided team projects through application of FDA QSR and ISO 13485 standards, incorporating real-world industry practices, risk management concepts, and structured problem-solving frameworks (FMEA, 5 Whys).
- Reviewed capstone proposals and technical documentation using Microsoft Office and data-driven tools, achieving 15% reduction in submission errors by ensuring alignment with medical device design control requirements.

Carle Health **Urbana, Illinois**
Project Manager *Aug 2023 - May 2024*

- Directed a cross-functional student team to design and develop Class II cerebrospinal fluid drainage device, ensuring 100% adherence to FDA QSR and ISO 13485, and delivering all project milestones 2 weeks ahead of schedule.
- Led risk assessments and design reviews per ISO 14971, incorporating data-driven insights and quality assurance techniques that improved projected device safety by 15%.
- Coordinated with clinical staff and regulatory advisors to support pre-submission planning and documentation; used Agile practices to cut FDA preparation timeline by 20%.
- Managed scope, schedule, and budget using Microsoft Project Planner; implemented resource tracking and change control, improving team coordination and task completion efficiency by 25%.

EDUCATION

University of Illinois (UIUC), Urbana-Champaign, Illinois
Master of Engineering in Biomedical Engineering with Business Management *GPA: 3.87/4.00*

University of Mumbai, Mumbai, Maharashtra
Bachelor of Engineering in Biomedical Engineering *GPA: 3.54/4.00*

SKILLS

Medical Device Design and Development, Design Control Documentation (URS, PRS, DTM), Verification and Validation (V&V) Testing, Root Cause Analysis, Risk Management, SolidWorks, Design for Manufacturability, Polymers (TPU), Metals (Nitinol), Mechanical Testing, Biocompatibility & Sterilization Testing, ISO 10555, ISO 10993, ISO 13485, ISO 14971, 21 CFR 820, FDA Regulations, Supplier Communication, Agile Methodologies, System Validation, Quality Assurance Testing (IQ, OQ, PQ), Test Method Development, Test Protocol Development, Prototyping and Testing, Technical Documentation (IFU, Specifications), Mentoring Students, Executive Presentation Preparation.

ADDITIONAL EXPERIENCE

ORAQ Regulatory Affairs Training Program – Duke University School of Medicine *Apr 2024 – May 2024*
Completed a structured FDA regulatory training covering IDE/IND submissions, device classifications, premarket pathways, and FDA communication best practices for medical devices.