Saif A. Abbas

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EDUCATION

University of Pittsburgh, Pittsburgh, PA   Expected: December 2025
Master of Science in Medical Product Engineering (ABET-accredited)

West Virginia University, Morgantown, WV   Graduated: May 2024
Bachelor of Science in Biomedical Engineering (ABET-accredited)

WORK EXPERIENCE

Alavi Metamaterials Lab, Pittsburgh, PA   September 2024- January 2025
Research Intern

- Researched and designed a Metamaterial Triboelectric stent applying engineering principles, design calculations, and risk assessment to develop a functional proof of concept for real-world medical applications.
- Evaluated the fiscal viability of the concept using SWOT and other tools, identified 2 concept areas that needed to be enhanced or pivoted.
- Obtained valuable skills in Market Research and Business Strategy and received certification from the Product Development Managers Association.

WVU Medicine, Morgantown, WV   March 2023- August 2023
Clinical Associate

- Provided exceptional patient care by assisting with admissions, monitoring vital signs, ambulating patients, and delivering basic patient education.
- Developed troubleshooting skills by monitoring and addressing equipment performance issues in a fast-paced medical setting.
- Obtained valuable insight into use of technology in clinical environments to aid personal understanding of gaps in development.
- Gained hands on experience with technical systems, contributing to data-driven decision making and process improvements.

Neural Engineering Recovery Lab, Morgantown, WV   January 2021 – May 2024
Research Intern

- Project 1: Analyzed robotic surgeon skill progression using EMG data; Collected and processed data with MATLAB.
- Proved method of assessment allowed for greater insight into skill level for all professional levels.
- Applied statistical analysis techniques to evaluate system performance and identify areas for improvement.
- Project 2: Analyzed arm/muscle function in Cervical Myelopathy patients; helped design and develop Testing apparatus for fine motor function; processed Data in MATLAB coding software.
- Submitted 2 abstracts for poster presentations at American Physician Scientists Association of America and Society for Neuroscience.

PROJECTS

Cranium Cradle Gamma Knife Project, Pittsburgh PA   August 2024- December 2025
Design Engineer

- Collaborated with a Neurosurgeon at UPMC to ideate solutions for inefficiencies in OR, Gamma Knife, and Clinical practices.
- Shadowed Operating Room and Gamma Knife Procedures to understand where clear need for development existed.
- Designed and developed a noninvasive head stabilization device for Gamma Knife procedures.
- Conducted biomechanical testing to verify product performance.

- Developed detailed engineering documentation, including CAD models and Design History Files.
- Conducted risk analysis and created procedures for stress testing and verification testing to ensure product safety.

Emergency Room AI Triage Project, Morgantown, WV   October 2023- Present
Project Lead
- Initiated a project to develop an AI triage system to lower wait times for the WVU Medicine Emergency Department.
- Designed and implemented AI algorithms to quantify severity, integrating machine learning to optimize wait times using python.
- Recruited a team of Emergency Room doctors and Computer Science Professors as collaborators and experts.
- Worked with large datasets and cloud computing resources to process 20 years of Emergency Room data for predictive analytics.
- Gained valuable experience in research and project initiation and honed skills such as project management and leadership.

TECHNICAL SKILLS

Programs: MS Office, Artificial Intelligence, Machine Learning, CorelDRAW, Figma
Programming Languages: MATLAB, Python, C++, JavaScript, HTML, CSS
Software Development: Object-Oriented Programing, UML Design, Agile Development
Workshop: Rapid Prototyping, Fusion 360, Arduino, Soldering, 3D Printing, Laser Cutting, CNC Routing

OTHER SKILLS

Medical Device Development: Design Verification & Validation, and Documentation, Human Centered Design, Human Factors, Risk Analysis, Ethnographic Research

Regulatory Compliance: FDA Design Controls, Design History Files, Quality Management Systems, Quality Systems Regulations, Clinical Testing, Quality Assurance, FMEA

Project Management: PDMA Certification, Market Research, Portfolio Management, New Product Innovation, Life Cycle Management, Product Design and Development