

Abbas Mirza

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EDUCATION

GPA: 3.5

Drexel University - M.S. Biomedical Engineering (Medical Device Focus)

2023 - 2025

Coursework: Medical Device Development, Additive Manufacturing, Imaging Systems, and Tissue Engineering

Drexel University - B.S. Mechanical Engineering

2018 - 2023

Concentration: Mechanical Design & Manufacturing Systems

RESEARCH & ENGINEERING PROJECTS

Graduate Research: 3D-Printed PEKK Vertebral Implant Development

Dec 2024 - Aug 2025

Drexel Implant Research Center

- Developed a CT-based workflow for patient-specific spinal implant design, from vertebral segmentation through definition of implant geometry and anatomical constraints.
- Designed parametric corpectomy implant concepts in Creo/SOLIDWORKS, informed by surgeon input and surgical workflow considerations.
- Defined a preliminary design envelope for thoracic and cervical devices and planned ASTM F2077-aligned verification strategy for worst-case geometries.
- Collaborated with spine surgeons to translate clinical feedback into implant geometry and interface design iterations.

Manufacturing Equipment Engineer

Oct 2022 - Jun 2023

B&G Manufacturing

- Designed automated robotic tooling systems from concept through production release, ensuring performance, manufacturability, and reliability.
- Produced detailed drawings, BOMs, and change documentation to support validation and manufacturing handoff.
- Performed iterative verification using FEA, tolerance analysis, and functional testing.
- Delivered automation solutions reducing manual handling by 90% and saving \$100K+ annually.

PROFESSIONAL EXPERIENCE

Contract CAD Designer - Engineering Design & QA/QC

Jan 2026 - Present

Mastec, Inc.

- Produce and review detailed engineering drawing packages, BOMs, and procedures, ensuring accuracy, completeness, and compliance with internal QA/QC standards.
- Collaborate with project managers and engineers during formal design reviews, incorporating feedback and managing design revisions under schedule constraints.
- Implement design modifications to improve drawing clarity, constructability, and downstream execution efficiency.
- Maintain rigorous documentation control and version tracking across multi-disciplinary engineering teams.

Optical Manufacturing Co-Op

Nov 2020 - Mar 2021

Horiba Instruments

- Supported product development and sustaining engineering of precision spectrometer assemblies within a regulated manufacturing environment.
- Designed and validated mechanical fixtures and alignment tooling using SOLIDWORKS, improving assembly repeatability and achieving sub-micron alignment tolerances.
- Executed verification testing to quantify optical coating and assembly performance, generating data used to refine design specifications and acceptance criteria.
- Collaborated cross-functionally with R&D engineers, manufacturing technicians, and quality teams to resolve design and process nonconformances.

Engineering Analyst

Sep 2019 - Mar 2020

Capital Project Management Inc.

- Performed forensic schedule and cost analyses on multimillion-dollar infrastructure programs using CPM.
- Developed executive-level dashboards supporting litigation and risk-mitigation strategy.

SKILLS

CAD & Design: Creo, SOLIDWORKS, Fusion 360

Analysis: ANSYS (FEA), tolerance analysis, FMEA

Medical Devices: FDA Design Controls, DHF, Design Verification & Validation

Standards: ASTM F2077, ISO 10993 (familiarity)

Manufacturing: Additive manufacturing, prototyping, vendor collaboration

Tools: Excel (advanced), PowerPoint, technical & regulatory documentation