

# Abbas Mirza

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## EDUCATION

GPA: 3.5

### Drexel University - M.S. Biomedical Engineering & Bioinformatics

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 – Present

Drexel Implant Research Center

- Spearheading an interdisciplinary R&D initiative developing next-generation, patient-specific spinal implants with PEKK, enabling hospitals to 3D print stabilization devices in-house and reduce procurement costs by up to 50% and eliminating multi-week lead times.
- Orchestrating a full translational design pipeline from CT-based segmentation to finite-element-validated prototype fabrication using advanced additive manufacturing technologies.
- Driving clinical co-development with Jefferson University Hospital spine surgeons to ensure regulatory alignment (ASTM F2077, ISO 10993) and clinical translation feasibility.
- Supporting material innovation by optimizing porosity and lattice topologies for osteointegration and load distribution under physiological stress regimes.

### Robotic Manufacturing Automation Cell – B&G Manufacturing

Oct 2022 – Jun 2023

- Directed a multidisciplinary engineering team in designing and implementing a fully automated robotic end-effector system, achieving a 90% reduction in manual handling and an annualized savings exceeding \$100K.
- Executed complete product life-cycle development: concept, CAD/FEA validation, prototyping, and production integration.
- Engineered high-precision end-effector geometries with parametric modeling and iterative FEA/FMEA cycles in SOLIDWORKS + ANSYS.
- Authored comprehensive technical documentation adopted company wide as the reference for future robotic integration initiatives.

## PROFESSIONAL EXPERIENCE

### Sales Associate

Sep 2025 – Present

Best Buy

- Provide high-quality customer service and needs-based guidance to 50+ customers per shift.
- Ensure accurate information intake, product explanation, and problem resolution for a smooth experience.
- Collaborate with team members to maintain efficient store workflow during peak hours.

### Optical Manufacturing Co-Op

Nov 2020 – Mar 2021

Horiba Instruments

- Led a high-impact R&D initiative to quantify and standardize optical coating performance, enhancing measurement precision and reducing recurring test costs by \$10,000+ per year.
- Collaborated with senior optical physicists to resolve alignment and chromatic dispersion challenges in OEM spectrometer assemblies, achieving sub-micron accuracy thresholds.
- Designed, fabricated, and validated optical fixtures using SOLIDWORKS and THORLABS components, integrating lean manufacturing principles to accelerate turnaround time by 25%.
- Authored process optimization documentation later incorporated into the company's global quality management system.

### Engineering Analyst

Sep 2019 – Mar 2020

Capital Project Management Inc.

- Conducted forensic delay and cost analyses on multimillion-dollar infrastructure programs (federal embassies, power facilities, and transportation systems) utilizing the Critical Path Method.
- Combined large-scale scheduling data into executive visual dashboards, guided litigation-support strategy for Fortune 500 clients.
- Partnered with senior project executives to implement predictive risk-mitigation models, improving project delivery accuracy by 15%.

## SKILLS & CERTIFICATIONS

### Technical:

Engineering: SOLIDWORKS, Creo, Auto-CAD, REVIT, 3D Printing, Fusion 360, CURA, FormLabs, Dicom to Print, Slicer 3D, Microsoft Office

Programming: Python 3, MATLAB, R, LaTeX, SQL, BASH, HTML, PHP

### Certifications:

Codecademy Python 3 Certification, Coursera Google Data Analytics