

Abbas Mirza

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EDUCATION

GPA: 3.5

Drexel University | Master's Degree in Biomedical Engineering and Bioinformatics

September 2023 - Present

Drexel University | Bachelor's Degree in Mechanical Engineering

September 2018 - June 2023

PROJECTS

Master's Thesis: 3D-Printed Point-of-Care PEKK Vertebral Implant Development

December 2024 - Present

Drexel Implant Research Center

Philadelphia, PA

- Designing and fabricating patient-specific **vertebral implants** using Poly Ether Ketone (PEKK) thermoplastic
- **Segmenting, 3D modeling** patient CT images from Jefferson University Hospital with **D2P and 3D Slicer**
- Investigating **additive manufacturing** techniques to optimize implant geometry and properties for fusion
- Collaborating with **academic advisors** and **Spine Surgeons** to ensure design feasibility and regulatory compliance

Collaborative Robot Implementation into the Manufacturing and Machining Industry

October 2022 - June 2023

B&G Manufacturing

Philadelphia, PA

- Saved company **\$100,000** in labor costs and improved employee safety by designing and prototyping end effectors with **SOLIDWORKS, ANSYS Workbench, and 3D Printing** to attach to automated collaborative robot
- Developed an automated cell for lathing process on manufacturing facility floor:
 1. End effector designed to move the bolt into/out of machines at different stages.
 2. **Finite Element Analysis** performed to determine part life.
 3. **FMEA** table created to diagnose possible failures/errors. Full cost metrics calculated in report found on my LinkedIn

EXPERIENCE

Building Manager

November 2023 - Present

Drexel University Student Centers and Engagement

Philadelphia, PA

- Provided exceptional customer service by greeting visitors, answering inquiries, and ensuring a welcoming, secure environment, contributing to consistently positive feedback

Optical Manufacturing Co-Op

November 2020 - March 2021

Horiba Instruments

Piscataway, NJ

- **Led internal research project** to quantify optical paint samples, optimizing testing procedures that increased measurement accuracy and **reduced costs by an estimated \$10,000** for OEM spectrometer products
- Collaborated with Optical and Mechanical Engineers to resolve material compatibility and alignment precision challenges through **iterative testing and design adjustments**, leading to successful integration into spectrometer production
- Ensured fixture performance and economy through efficient sourcing of parts and fabrication with **SOLIDWORKS, THORLABS, and McMaster-Carr**
- Streamlined sample ordering and testing procedures, helping workflow inefficiencies and **project documentation** for future team use

Data Processing

May 2019 - December 2020

Skippack Medical Lab

Bensalem, PA

- Shadowed technicians and phlebotomists over on-site testing equipment, processes, and healthcare compliances
- Developed familiarity with healthcare compliance and **patient data management**
- Handled and processed **patient samples** with a focus on accuracy and efficiency
- Organized Blood and Culture Samples received for testing
- Categorized patient information for reporting, accessioning, and billing

Engineering Analyst

September 2019 - March 2020

Capital Project Management Inc.

Blue Bell, PA

- Evaluated **major issues impacting projects** including power facilities, embassies, commercial office buildings, heavy/highway projects, public works and educational facilities using the **Critical Path Method**
- Compiled complex data for analysis and summarization for ease of explanation in consulting work

SKILLS, CERTIFICATIONS, AND LEADERSHIP

Leadership Experiences: Drexel University Student Concierge **Lead and Trainer**, FISDU Barrio Documentation Head and Fight Choreography Organizer, Intramural Volleyball Captain, Personal Engineering and Mathematics **Tutor**

Certifications: Codecademy Python 3 Certification, Coursera Google Data Analytics

Technical Skills: *Programming Languages:* Python 3, MATLAB, R, LaTeX, SQL, BASH, HTML, PHP

Engineering Tools: SOLIDWORKS, Creo Parametric, Auto-CAD, 3D Printing, Fusion 360, CURA, FormLabs, Dicom to Print (D2P), Slicer 3D

Soft Skills: Strong Organization, Critical Thinking, Research Paper Writing, Technical Report Writing, Microsoft Suite, Endnote, Regression Analysis, Hypothesis Testing, Simulation Modeling