

Caleb Frey

Laboratory Experience and a Passion for Automation

Email: calefrey@gmail.com
Philadelphia, PA, USA

Experience

Digital Transformation Specialist

2022 - Present

Evonik Corporation

Allentown, PA

Increase business efficiency with the Microsoft Power Platform and manage laboratory technology to aid research and development

- Resolve user feedback and error reporting for a growing list of PowerApps and Flows
- Procure and manage laboratory network and computers to support laboratory needs
- Implement data security and protection to maintain compliance with industry best-practice
- Work with I.T. and laboratory personnel to securely connect equipment to vendor services
- Create Power BI reports to monitor key performance indicators for project management

Graduate Researcher

2020 - 2022

microMechanics of Deformation Research Group

Rutgers University, New Brunswick

Model fracture in highly toughened ceramic composites to predict viability of physical experiments using Finite Element Analysis

- Schedule and manage large-scale simulations using the Slurm job scheduler on a compute cluster
- Automate the generation, execution, and analysis of simulations to survey a wide parameter space
- Develop a data pipeline for efficiently managing and analyzing large amounts of simulation results
- Mentor colleagues to improve process automation, analytics, and efficiency for their own research

Undergraduate Laboratory Technician

2018 - 2020

Riman Research Group

Rutgers University, New Brunswick

Process and Characterize samples to aid in the discovery of carbon-negative construction materials

- Create and maintain a sample database to record material composition, characteristics, and history
- Develop a low-cost reactor control system with centralized logging and management features

Education

Rutgers University, New Brunswick

2021 - 2022

MS Materials Science and Engineering

- Research: Toughening Brittle Materials through Interfacial Modification using Finite Element Analysis

Rutgers University, New Brunswick

2017 - 2021

BS Materials Science and Engineering

- Concentration in Metallurgy and Renewable Energy
- Engineering Honors Academy

Skills

- **Programming** Python, Microsoft Power Platform, Matlab, Arduino, Willing to learn
- **I.T./DevOps** Linux, Docker, Git, Slurm, Monitoring, Networking, Hardware, Cloud/Serverless
- **Laboratory Skills** Safety-Minded, Xray Diffraction, Thermal Analysis, Mechanical Testing