Mike Keating

mike.keating4@gmail.com | +1 803-289-8047

github | linkedin

Education

Master of Industrial Engineering — Aug 2022 – Aug 2025

North Carolina State University — *Raleigh, NC*

GPA: 3.9/4.0

Relevant Coursework: Practical Machine Learning for Engineering Analytics (PyTorch, scikit-learn), Data Science for Statisticians, Statistical Models for Systems Analytics (R), Python Programming for IE, Simulation Modeling (SIMIO, @RISK), Finite Element Analysis (Ansys Mechanical)

Bachelor of Science - Polymer and Color Chemistry (ACS Certified) — Jan 2020 – Dec 2022

North Carolina State University — *Raleigh, NC*

Summa Cum Laude, GPA: 4.0/4.0, WCOT Dean's Award

Skills

Programming	Python | MATLAB | R | SQL | Git | Google Apps Script
Data & ML	pandas | NumPy | matplotlib | scikit-learn | PyTorch | Kornucopia ML
Tools & Infra	Ansys Granta MI | Docker | Web/UI (PySide, RShiny, Plumber API) | Linux/Windows
Other	Mechanical Testing (Instron) | Lab Automation | Technical Communication

Experience

Becton Dickinson and Company — Apr 2024 – Present

Engineer II – Digital Engineering, Simulation & Testing — *Durham, NC*

- Led redesign and implementation of materials data management solution using Ansys Granta MI, including backend schema overhaul, SQL Server deployment, and IT compliance integration.
- Designed and deployed Python-based GUI applications to automate testing and simulation data workflows, streamlining archiving, notifications, and data transfer of over 3,000 material tests across distributed engineering teams.
- Co-developed cross-language automation tool (Python + MATLAB) for test data ingestion, material parameter assignment, and generation of clean stress-strain plots with trimming algorithms by material class and test mode.
- Created visualization tool syncing compressive stress data with test video, enabling real-time analysis of lattice buckling in 3D-printed materials.
- Supported cross-functional project teams by providing reliable material characterization data and process insights for product development, including coordinating large scale tensile and creep testing plans representing 5000+ machine hours.

The Nonwovens Institute — Aug 2022 – Apr 2024

Research Specialist – Process Development — *Raleigh, NC*

- Oversaw R&D pilot lab for filament spinning of elasto-ester polymers, managing extrusion and testing workflows on pilot-scale equipment (extrusion, winding, Instron).
- Scripted a user-friendly plot overlay tool in Python using Tkinter and pandas, allowing stakeholders easily select test data from varying DOE treatments to assess differences in filament stress-strain properties.
- Developed semi-automated ETL pipeline using R and Google Apps Script to streamline lab data ingestion and creation of quality control charts.

Projects

Polymer Classification using Machine Learning

Graduate ML Project | *Colab Notebook* — *Python, scikit-learn, pandas, matplotlib*

- Built a machine learning pipeline to classify polymer types from mechanical test data, applying preprocessing (feature scaling, cleaning) and models including k-nearest neighbors, logistic regression, and ensemble methods such as XGBoost.
- Implemented cross-validation and hyperparameter tuning to improve prediction accuracy to 97% across 8 polymer subclasses.
- Designed visualizations to communicate model insights, including uncertainty matrices and Ashby plots.

Recreation Finder

Graduate Data Science Project | *ShinyApp* — *RShiny, Tidyverse, Leaflet*

- An interactive R Shiny application that allows users to explore over 100,000 U.S. recreation facilities via the Recreation Information Database (RIDB) API.
- Reactive output allows users to visualize facilities by recreation area, state, and government agency.