

ANDREW BREMNER

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🌐 <https://andrewbremner-portfolio.netlify.app>

WORK EXPERIENCE

Research Associate III

Velocity Sciences

📅 Apr. 2021 – Nov. 2023 📍 Boulder, CO

- Developed and wrote analysis programs in **python** for increasing the efficiency and consistency of image processing, data organizing, and statistical analysis of the data sets.
- Lead the implementation of the Benchling electronic lab notebook as well as built out the database side for entity tracking.
- Contributed to Velocity Sciences' proprietary biomarker capture technology and novel detection platforms to create highly sensitive and multiplexed diagnostic assays.
- Researched and Developed new measurement techniques and assay protocols for measuring a wide range of biomarkers for binding parameters and develop high throughput capabilities for each of the techniques and protocols.

Research Chemist

TDA Research Inc.

📅 Oct. 2019 – Apr. 2021 📍 Golden, CO

- Contributed to a wide array of SBIR program projects. Based around design of experiments (DoE).
- Developed corrosion resistant electroplated thin coatings and polymer durable solid lubricants using ISO and ASTM standards for testing methods.
- Conducted tensile testing on various materials, analyzed the data with **python**, and built a data set used for **python** based machine learning (ML).
- Managed materials and process development for polymer wires to be used in medical electrode implantation devices.
- Developed anti-fogging eye wear using conducting polymer joule heating and photo-lithography to optimize the conductive pathways.

Research Intern

Institute of Molecular Sciences (ISM)

📅 Jan. 2019 – Jun. 2019 📍 Talence, France

- Optimized and gathered confocal Raman, SERS and TERS images and spectra of β -amyloid aggregates and reference organic and protein molecules.
- Manufactured robust and efficient TERS probes through sputtering and chemical and physical functionalization.

Research Intern

Coolscience LLC.

📅 May 2015 – Aug. 2016 📍 Boulder, CO

- Operated an Inductively Coupled Plasma Mass Spectrometer (ICP-MS) and a Scanning Electron Microscope (SEM). Prepared samples and standards for the ICP-MS.
- Conducted independent studies tracking Lead, Copper, and other metals plating onto Palladium cathodes from solution through electroplating.
- Analyzed data from the ICP-MS; wrote programs and protocols to filter out artifact data using **Excel**, **Java**, **Mathematica** and **Python**.
- Analyzed archive data using **Matlab** to recreate calorimetric data to find the process a previous analysis used in order to verify or invalidate the process and conclusions drawn from the original analysis.

SKILLS

Languages and Software

- Python, Pandas, SciPy, Scikit-learn, PyTorch, Streamlit
- SQL, PostgreSQL, R, JavaScript, Git
- MATLAB, C++, HTML, CSS, Microsoft Office

DATA PROJECTS

Housing Price Predictor

- Regression predictions where the data sets are 'messy' with fields that need to be treated in various ways. Dummy variables are used for categorical fields.
- Elastic Net model is used with a Grid Search on split data for optimal parameters, then Random Forest. Re-training with best model on entire data set.

MLB Pitch Classifier

- Python script that takes two months of statcast data from the 2022 season (250,000 pitches) and builds two machine learning models (Random Forest and Logistic Regression) to determine what pitch is thrown.
- Pulls data from statcast, cleans using baseball knowledge of what fields matter. Uses Random Forest and Logistic Regression models with a large and a small data sets to see their benefits and costs for accuracy of pitch classification and time the model takes to run.

Slide Image Processor

- Streamlit based Python App takes in a raw image file from a slide scanner with 21 microarrays and processes them to output the intensities of the various features.

Spaceship Titanic Classification

- Front to back processing of the data set. Exploratory analysis, feature engineering, train and test on split data with various Classification models. Use the best model (Histogram-based Gradient Boost) to re-train on full training data set for final Kaggle submission.

EDUCATION

M.S. in Materials Science

Colorado School of Mines

📅 Aug. '17 – May '19 📍 Golden, CO

- Cumulative GPA: **3.81 / 4.00**

B.S. in Physics

Beloit College

📅 Aug. '13 – May '17 📍 Beloit, WI

- Cumulative GPA: **3.89 / 4.00**

Certificate of Python Programming

UC San Diego

📅 Jan. '23 – Nov. '23 📍 San Diego, CA

Udemy Certifications

Python for ML & Data Sci. Masterclass
PyTorch for Deep Learning
The Complete JavaScript Course 2024
The Complete SQL Bootcamp
Data Sci. and ML Bootcamp with R