ANDREW BREMNER

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WORK EXPERIENCE

Research Associate III

Velocity Sciences

Apr. 2021 – Nov. 2023 Boulder, CO

- Spearheaded the development of analysis programs using **python**, enhancing the efficiency and consistency of image processing, data organization, and analysis processes.
- Orchestrated the adoption of the Benchling electronic lab notebook system, complemented by the creation and optimization of database functionalities for entity tracking.
- Played a pivotal role in advancing Velocity Sciences' proprietary biomarker capture technology and detection platforms, resulting in ultra-sensitive and multiplexed diagnostic assays.
- Investigated measurement techniques and assay protocols, optimizing binding parameters for a diverse range of biomarkers. Engineered high-throughput capabilities for streamlining data acquisition and analysis workflows.

Research Chemist

TDA Research Inc.

Oct. 2019 – Apr. 2021 Golden, CO

- Played integral roles in multiple SBIR program projects, specializing in the application of Design of Experiments (DoE).
- Formulated corrosion-resistant electroplated thin coatings and robust solid lubricants, adhering to ISO and ASTM standards.
- Conducted comprehensive tensile testing across diverse materials, leveraging Python for data analysis. Curated a dataset utilized for Python-based machine learning applications.
- Directed materials and process development initiatives for polymer wires for medical electrode implantation devices, ensuring adherence to stringent quality and safety standards.
- Innovated anti-fogging eyewear solutions by employing conducting polymer joule heating and optimizing conductive pathways through precise photo-lithography methodologies.

Research Intern

Institute of Molecular Sciences (ISM)

Jan. 2019 – Jun. 2019 Talence, France

- Collected confocal Raman, Surface-Enhanced Raman Scattering (SERS), and Tip-Enhanced Raman Scattering (TERS) images and spectra of β-amyloid aggregates alongside references.
- Engineered durable and high-performance TERS probes via sputtering techniques coupled with meticulous chemical and physical functionalization, ensuring reliability and efficiency in nanoscale imaging applications.

Research Intern

Coolescence LLC.

May 2015 – Aug. 2016 Boulder, CO

- Proficiently operated an Mass Spectrometer **(ICP-MS)** and a Scanning Electron Microscope **(SEM)**, demonstrating expertise in sample and standard preparation.
- Employed Excel, Java, Mathematica, and **Python** to analyze and filter data from the ICP-MS, developing programs and protocols to eliminate artifact data, ensuring the accuracy of analytical results.
- Conducted independent studies focused on tracking the electroplating of Lead, Copper, and other metals onto Palladium cathodes, contributing to valuable insights into the electrochemical processes involved.

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 (EDA). Dummy variables are used for categorical fields.
- Sklearn models and NN are used with a Grid Search on split data for optimizing parameters. Optimized model is re-trained on entire data set for final model.

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 API, cleans using baseball knowledge of what fields matter. Uses Random Forest and Logistic Regression models with large and small data sets to see their benefits and costs for accuracy of pitch classification and time the model takes to train.

Slide Image Processor

- Streamlit based Python App using computer vison packages to take a raw image file from a slide scanner with 21 microarrays and processes them to output the intensities of the various features.

Recipe Search Web App

- Web application that utilizes the 'forkify' API to search for and display recipes with functional and smooth UI and UX. Hosted Web app on netlify.

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