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.

Data Analyst Intern

Laboratory for Atmospheric and Space Physics (LASP)

May 2018 – August 2018 Boulder, CO

- Utilized Time of Flight Mass Spectrometry coupled with particle accelerator excitation data to analyze and identify organic molecules and/or fragments within spectra.
- Fabricated electronic enclosures for vacuum safety systems, encompassing tasks such as soldering electronic boards, machining custom enclosures, conducting rigorous product testing, and seamlessly integrating the systems into the vacuum infrastructure of the particle accelerator.

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

- Conducted regression analysis on datasets characterized by noise and inconsistencies, necessitating thorough exploratory data analysis (EDA) and dummy variable creation to preprocess fields.
- Utilized both Scikit-learn models and neural networks (NN) for predictive modeling, employing split data and Grid Search techniques to optimize hyperparameters.

MLB Pitch Classifier

- Developed a Python script that retrieves Statcast data, comprising 250,000 pitches, via the Statcast API. Leveraged domain knowledge of baseball to perform data cleaning. Utilized the data to build machine learning models aimed at accurately predicting the type of pitch thrown.
- The script was designed to evaluate the performance of the models using both large and small datasets, assessing the trade-offs between accuracy of classification and training time.

Slide Image Processor

- Created a Streamlit-based Python application integrated with computer vision packages to streamline the processing of image files obtained from a slide scanner containing 21 microarrays. The application's primary functionality is to extract and analyze the intensities of the microarrays.

Recipe Search Web App

- Built a web application leveraging the 'forkify' API to enable users to search for and explore recipes seamlessly. The application features a functional and smooth UI and UX, prioritizing ease of use and efficiency.

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