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Will Jarrard

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Technical Experience

Associate Specialist **Oct 2022 — Present**
UCSF *San Francisco, CA*

- Leading the end-to-end development of pretraining a transformer-based deep learning model to learn the relationship between DNA sequence and chromatin confirmation (ATAC-seq) utilizing PyTorch and AWS SageMaker.
- Achieved nearly 90% accuracy by finetuning my model in identifying transcription factors' binding sites on DNA, crucial for understanding gene regulation.
- Trained model to predict colocalization of transcription factors, Enhancing the understanding of gene regulation and its impact on diseases.

Data Science Intern **Jun 2021 — Aug 2021**
University of Virginia *Remote (originally Rwanda)*

- Created an advanced technique to extract key details such as drug names from Rwandan hospital paper medical records, using YOLO for segmenting text and LSTMs to analyze the sequence of drugs.
- Offering a way to enhance medical documentation and patient care.

Devops Intern **May 2020 — Aug 2020**
ResMed (Propeller Health) *Madison, WI*

- Improved our company's systems by managing various infrastructure projects on Amazon Web Services (AWS), including Lambda, EC2, S3, IAM, Cloudwatch, Cloudtrail, and ECS, enhancing my expertise in AWS products.
- Created an automated alert system that notifies us via Slack of AWS service failures, enhancing real-time system monitoring and uptime

Education

Masters of Science in Data Science, *University of Virginia* 2022
Bachelors of Science in Systems Engineering, *University of Virginia* 2021

Skills

Tools and Languages	Statistics, Probability, Bayesian Statistics, Python, Rust, Linux, Git, Numpy, Pandas, AWS (Sagemaker, EC2, S3, ECS, Lambda), Scikit-learn, Pytorch, Jax, Docker, Terraform, HPC, Slurm
Supervised Learning	Regression, Decision Trees, Support Vector Machines, Boosting
Unsupervised Learning	Clustering, Principal Component Analysis
Deep Learning	Feed Forward Network, CNNs, RNNs, Attention-based Models, VAE's, Diffusion Models

Publications

[1] Navya Annapareddy et al. "Handwritten Text and Digit Classification on Rwandan Perioperative Flowsheets via YOLOv5". In: (2022), pp. 270–275. DOI: 10.1109/SIEDS55548.2022.9799426.

[2] Bi Shi et al. "UTX condensation underlies its tumour-suppressive activity". In: *Nature* 597 (2021), pp. 726–731.

Projects

rust-seq (github)
Helping out with the development of fundamental building block crates for rust in bioinformatics (In progress)
UVa Building Classifier (github)
Classified buildings at UVa using transfer learning.
Comparing different ML Methods for Song Classification (github)
This project focuses on classifying songs into genres using only their lyrics, evaluating the effectiveness of both traditional machine learning algorithms and neural networks in accomplishing this task.