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Will Jarrard

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Technical Experience

Associate Data Scientist **Oct 2022 — Present**
UCSF *San Francisco, CA*

- Led the development of advanced predictive modeling techniques, including AI-driven methods to model biological data, leveraging machine learning algorithms to improve the accuracy and efficiency of genomic data analysis.
- Utilized Python, PyTorch, and AWS SageMaker to pretrain a transformer-based deep learning model to identify critical patterns in genomic and epigenomic data, achieving nearly 90% accuracy in identifying transcription factor binding sites
- Designed and deployed automated model pipelines to enhance the scalability and reproducibility of analysis, ensuring rapid data processing and model deployment for continuous updates to the predictive models.

CGHE Scholar **Jun 2021 — Aug 2021**
University of Virginia *Remote (originally Rwanda)*

- Awarded the Center for Global Health Equity grant to lead healthcare system improvement initiatives, including the development of predictive models for patient flow and stress testing hospital operations.
- Developed an AI-based approach to automate text extraction and pattern recognition from medical records using YOLO and LSTMs
- Worked with Rwandan doctors to implement the simulation results into actionable strategies, identifying bottlenecks in patient admittance and proposing data-driven solutions to optimize workflows.

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

- Built different infrastructure projects on Amazon Web Services (AWS), including Lambda, EC2, S3, and Cloudwatch, optimizing the cloud environment for efficient data processing and model deployment
- Developed automated systems to monitor AWS services and alert teams of failures, enhancing real-time system monitoring and improving operational reliability
- Migrated the entire Github organization to Terraform using Infrastructure as Code (IaC) principles to streamline repository access and automate deployment pipelines, ensuring efficient deployment of machine learning models and analytics tools in production environments.

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, 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.