ZACH ALLEN

He/Him

IMPACT & EXPERIENCE

Sofware Engineer *at* Pluton Biosciences   *2021-03 - 2021-08*

Data Engineering and Cloud Infrastructure supporting Bioinformatics & Genomics research

- ○ **AWS Genomics Pipeline**
  Terabyte-scale AWS genomics pipeline to meet rapidly growing startup needs
  - ▪ Demonstrated experience using CS to meet business needs: Developed simple Python+R framework enabling non-CS teammates to deploy large-scale genomic analysis queries, without 'blocking on' the bottlenecked CS team.
- ○ **Containerized Deployment & Autoscaling**
  Researched, containerized, documented, and deployed 10+ Computational Genomics tools to AWS ECS and EC2
  - ▪ Leveraged experience in Docker and Kubernetes to streamline & automate containerization workflow for Computational Genomics tools, turning user requests into production tools in as little as 6h.
- ○ Led the CS team in adopting SDLC tools like Git, AWS CodeCommit, and Docker / AWS Elastic Container Registry. Championed utilization of Microsoft Teams Kanban tools for project&process management.
- ○ Worked closely with SMEs to perform statistical analysis and visualization of microbial taxonomy data in R.

Machine Learning Researcher (Intern)   *2017-01 - 2017-05*

at Pacific Northwest National Laboratory

ML Research and Data Engineering

- ○ Designed and tested novel Neural Network algorithms, architectures, and error formulations for NLP, image classification, and time-series data classification.
- ○ Demonstrated increased test accuracy (15% → 90% detection with higher Bayesian Confidence) on unbalanced (>1000:1) datasets for network insider threat detection, without duplication, augmentation, or batch filtering.

EDUCATION

Bachelor's in Computer Science   *2019-02 - 2022-08*

at Western Governors University

Focused on Machine Learning and Project Management in a fully remote environment

- ○ **Diamond Price Prediction Model** *link*
  End-to-End ML Model development and documentation for a mock gemstone marketplace
  - ▪ Researched & analyzed opportunities to integrate Machine Learning with existing infrasructure, merging technical requirements and business needs.
  - ▪ Rapidly prototyped Python data pipeline in Numpy/Pandas and ML model in SciPy, demonstrating project validity quickly at least expense.
- ○ **Advanced Java Concepts** *link*
  Developed appointment scheduling and customer database tool in Java

SUMMARY

Machine Learning Researcher & Data Engineer with 5 years experience in collaborative AI innovation & infrastructure implementation at scale. Expert in Python & TensorFlow since 2015/2017. Passionate about working closely with multidisciplinary partners to shape the future towards global sustainability. Excellent writing, speaking, presenting, and technical communication skills.

CONTACT

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PROJECTS

Neural Cellular Segmentation *link*

Exploring neural cellular automata and attention (NCA+A) for medical image segmentation in TensorFlow

- ○ Developed, tested, and iterated NCA+A models in TensorFlow, balancing system resources and model size.
- ○ Created multiple tf.Data pipelines with preprocessing and data augmentation steps.

Interplan *link*

Task dependency management from a Graph Database

- ○ Packaged Node+Neo4J in Docker & Kubernetes for easy migration.