Zach Allen

He/Him

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ABOUT ME

Computer Scientist with 3 years experience in leadership, Data Science, and problem-solving. Reliably fast learner across all topics. Independently implemented and deployed terabyte-scale AWS genomics pipeline in 4 months part-time. Developed novel ML architectures for unbalanced datasets (>1000:1), raising rare-case detection from 15% to 90% with no loss in accuracy. Leverages communication and Project Management skills to integrate SME, business, and stakeholder needs.

EDUCATION

Bachelor's in Computer Science *at* Western Governors University *in Utah, USA (Online)* 2019-02 - 2022-08

Thrived in a self-directed remote envirionment

SUB-TASKS:

- **Diamond Price Prediction Model** *link*
  Produced and documented a diamond price prediction model.
  - Developed simple Data Pipeline in python/pandas.
  - Demonstrated integration of business needs and SDLC processes.
- **Advanced Java Concepts**
  Developed appointment scheduling and customer database tool in Java.
  - Demonstrated tight integration with JavaFX, JDBC, and MySQL.

ACHIEVEMENTS:

- **CompTIA Project+** *Validate with Registration: 358639011 Validation: 155946649* 2019-07
  Issued by Pearson VUE
  Demonstrated understanding of Project Management roles, processes, and documentation.
- **Site Development Associate**
  Issued by CIW
  Demonstrated ability to design and build websites.
- **IT Information Library Foundations Certification (ITIL)**
  Issued by AXELOS
  Demonstrated understanding of designing, deploying, maintaining, and retiring IT resources.
- Excellence Award for Communication Applications

IMPACT & EXPERIENCE

Sofware Engineer *at* Pluton Biosciences *under* Dr. Boahemaa Adu-Oppong *She/Her* 2021-03 - 2021-08
in St. Louis, Missouri, USA link BAdu-Oppong@plutonbio.com
Data Engineering supporting bioinformatics research

- Independently designed, implemented, and deployed Terabyte-scale AWS genomics pipeline in 4 months, from no prior genomics or AWS experience.
- Designed, implemented, developed training for, and documented an in-house Python API enabling (non-CS) biologists to deploy multi-stage genomics queries without relying on the CS team.
- Interfaced with SMEs to gather, interpret, and execute on pipeline requirements. Interfaced with Bioinformatics pipeline design expert for high-level guidance.
- Led the CS team in adopting CI/CD tools like Git, AWS CodeCommit, and Docker / AWS Elastic Container Registry.

Embedded Systems Engineer *at* Applied Separations *under* Aaron Allen *He/Him* mnrnln@gmail.com 2019-01 - 2020-01
in Allentown, Pennsylvania, USA link
Developed custom C++ / Arduino pump control software

- Designed and developed pump control software for chromatography and analytical chemistry systems.
- Designed and validated mass delivery tracking, prediction, and smoothing algorithms, to handle nonlinear feedback delay.
- Wrote a simple heuristic scheduler & virtual threading to manage real-time (60Hz+) pump control, touch screen input, and data/control communication, all on a single Arduino Mega.
- Interfaced with separate development team in charge of chromatography control software. Collected and implemented requirements from instrumentation engineer.

Service Writer *at* Alpha Computer Center *under* Frank Ward Jr. *He/Him* 2017-12 - 2018-11
in Richland, Washington, USA link frankjr@alphacomputercenter.com +1 (509)946-4230
Customer service, sales, and technician support

- Ensured customers were able to accurately understand and communicate with repair technicians, improving customer service and reducing diagnostic time.
- Reduced call frequency with an informative website. See it on web archive.
- Leveraged extensive Linux experience to rapidly identify and repair issues that couldn't be fixed by Mac diagnostic tools.

Machine Learning Researcher (Intern) *under* Dr. Enoch Yeung *He/Him* eyeung@ucsb.edu 2017-01 - 2017-05
at Pacific Northwest National Laboratory
in Richland, Washington, USA link
ML Research and Data Engineering intern

- 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, without duplication, augmentation, or batch filtering.
- Worked independently, balancing multiple projects and deliverables with minimal mentor supervision, often meeting every two weeks.

PROJECTS

Neural Cellular Segmentation *link*
Exploring neural cellular automata and attention (NCA+A) for medical image segmentation

- Developed, tested, and iterated NCA+A models, 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

- Developed a Neo4J+React dependency resolution and task status tracking web app.
- Packaged React app and Neo4J database in Docker & Kubernetes for easy migration.

MarkNotes *link*
Intuitive journaling tool designed to encourage long-term review and introspection

- Implemented MongoDB and Node API for destructuring, storing, and querying Markdown entries as semi-structured data.
- Packaged React app and MongoDB in Docker & Kubernetes.

NetTimeLog *link*
Minimalist, accurate time tracking

- Created time-tracking web app which records what you just completed, so you never estimate what you will do or how long it will take.