Eric Au

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EXPERIENCE

Mammoth Biosciences, Inc.

Software Engineer, Full Stack — Mar 2022 – Present

- Responsible for cloud infrastructure that promotes both CDK and Terraform to maintain load balancers, submit batch jobs and deploy serverless AWS Lambda functions to standardize multi-cloud architecture
- Accelerate the implementation of Kubernetes in AWS Cloud (EKS) to scale Jupyter Hub Notebooks deployments into an accessible software solution and optimizing compute costs
- Build full stack applications incorporating Django, MySQL and JavaScript React to advance the CRISPR diagnostics platform and answer questions at the intersection of computer science and biomedical research

Berkeley Lights, Inc.

Software Engineer, Bioinformatics — Jun 2021 – Mar 2022

- Lead development of testing process and automation infrastructure in order to scale continuous integration and deployment of software applications, which positively impacted cross functional team DevOps
- Supported clinical sample management and developed computing pipelines for scaling assays in laboratory automation, and leaded end-to-end pipeline development for exploratory research and development projects
- Designed and postulated validation strategies for library prep and sequencing of SARS-CoV-2 samples as public health surveillance which lead to identifying the novel SARS-CoV-2 strain variant, CAL.20C

Duke University

Research Analyst, Molecular Genetics and Microbiology — Jul 2018 – Dec 2020

- Developed graph data structure that incorporated genome diversity within populations which captured detailed and accurate variant analyses of haplotype-resolved genes and/or genomic regions
- Programed a framework which computed Illumina, Pacific Biosciences, Oxford Nanopore sequencing that produced a full 22 chromosome genome assembly that identified candidate genes and genomic changes
- Identified allele specific enhancers from regions of open chromatin that overlap differentially expressed genes to pinpoint biological discovery of functional enhancers in the developing brain
    - Mentored research specialists and graduate students on experimental design, analysis, and presentation of collaborative projects to best determine project scope, and managing deadlines

Stanford University

Life Science Research Professional, Genetics — Oct 2013 – Jul 2018

- Managed RNA-Seq analysis on responses to physical activity from a cohort and produced a comprehensive molecular map that accelerated the development of therapeutics and exercise recommendations
- Designed DNA/RNA isolation assays at production scale which optimized workflow and reduced cost

Senior Lab Technician, Developmental Biology

- Responsible for replenishing stock supplies, facilitated stickleback fish feeding & health monitoring to increase efficiency and quality of all laboratory experiments

COMPUTATIONAL SKILLS

- **Programing Languages:** Go(Lang), Bash/Linux, Python, HTML/CSS/JS/TS, C/C++, Mysql/Postgres, R
- **Cluster & Cloud Computing:** AWS/CDK, Google Cloud, Dask, Kubernetes, Slurm
- **APIs & Frameworks:** Apache, Docker, Django, Prefect, REST API, React, Terraform, TensorFlow

EDUCATION

San Jose State University **Bachelor of Science in Applied & Computational Mathematics**

- **Relevant Coursework:** Bioinformatics Numerical Analysis, Scientific Computing, Mathematical Modeling, Statistics, Data Structures and Algorithms, Differential Equations and Dynamical Systems

PUBLICATIONS

- Mangan RJ, Alsina FC, Mosti F, Sotelo-Fonseca JE, Snellings DA, **Au EH**, Carvalho J, Sathyan L, Johnson GD, Reddy TE, Silver DL, Lowe CB. Adaptive sequence divergence forged new neurodevelopmental enhancers in humans. DOI: 10.1016/j.cell.2022.10.016. **Cell Press 2022**.
- Wucherpfennig JI, Howes TR, Au JN, **Au EH**, Roberts Kingman GA, Brady SD, Herbert AL, Reimchen TE, Bell MA, Lowe CB, Dalziel AC, Kingsley DM. Evolution of stickleback spines through independent cis-regulatory changes at HOXDB. DOI: 10.1038/s41559-022-01855-3. **Nature Ecol. Evol. 2022.**