David A. Marinelarena

San Marcos CA · (760) 607-2406 · andy.marine99@gmail.com · linkedin.com/in/david-andrew-marinelarena

Summary

Dynamic biological researcher with 3+ years of professional experience spanning assay development, bioinformatics, and computational biology. Skilled in PCR, NGS, analytical chemistry and bioinformatics. Experienced in both academic research and biotech industrial environments. Recent contributions include building bioinformatics and machine learning pipelines for high-dimensional multi-omics data, diagnostic assay optimization, and microbiome research. Passion for bridging wet lab experimentation with computational modeling for data-driven discovery.

EDUCATION

Arizona State University Jun 2024 - Dec 2025 (Expected)

Masters of Science, Computational Life Science Tempe, AZ

- Course work in molecular genetics and genomics, functional genomics and statistical models for biology

California State University San Marcos Aug 2018 - Dec 2022

Bachelor of Science, Biological Sciences, emphasis in molecular and cell biology San Marcos, Ca

- USMC student scholar award recipient
- Performed Liaison duties as part of work study program helping veterans transition to energy careers
- Completed advanced coursework In molecular and cell biology, genetics, cellular biotechnology, CS skills for biologist, bioinformatics and immunology

PROJECTS/RESEARCH

Soil Microbe longitudinal Multi-omics Aug 2024 - Current

Bioinformatician Tempe AZ (remote)

- Bioinformatician to ongoing DoE supported research grant investigating temporally resolved soil multi omics
- Performed bioinformatic analysis of 16S amplicon and transcriptomic raw reads
- Developed a unified multi-omic dataset integrating feature abundance with temporal metadata, enabling robust downstream modeling of longitudinal patterns
- Supported downstream ML analysis using state-space-modeling and linear mixed effects modeling
- Documented code and experimental details in comprehensive google collab script

Qiyunlab - Part of ASU Institute for Biodesign, center for microbiomics May 2024 - Current

Graduate Student Researcher Tempe AZ (remote)

- Contributing to ongoing laboratory projects in microbiomics and bioinformatics
- Aided in development and testing of Scikit-Bio libraries to enable development of scalable, Open-Source Bioinformatic software tools for high-dimensional Multi-omics data analysis tools in Python
- Conducted Literature review utilizing web scraping and Graph based techniques supporting low biomass phylogentic diversity project

EXPERIENCE

Roche Diagnostics Jan 2024 - Aug2025

Research Associate II - Assay Development La Jolla, Ca

- Execution and planning of moderate to complex experiments independently to include both traditional and Digital PCR (Qiacuity, Digital Light-cycler, Bio-Rad) RT-PCR, PCR of biological samples as necessary
- Execution of stability studies to characterize internal control long term stability
- Presented findings to R&D and leadership
- Played key role in development of Image object detection machine learning platform to detect PCB defects present on Images taken during manufacturing
- Developed spectrophotometric proteinase detection assay

Quality Control Specialist Carlsbad, Ca

- Routine release testing of cartridge based Syndromic testing panel
- Executed spectrophotometric for nucleic acid and magnetic lysis bead quantification.
- Performed qPCR of Internal control to quantify present nucleic acid

Trilink Biotechnologies Feb 2022 - Jan 2024

Quality Control Associate I Sorrento Valley, Ca

- Routine analytical release testing of RNA capping reagents and small molecules using tandem liquid chromatography-mass spectroscopy (LC-MS)
- Generation of certificate of analysis (CoA) for mRNA, RNA capping reagents, chemistry products, oligonucleotides and small molecules
- Digitized chain-of-custody tracking to improve turnaround time metrics (TAT) metrics keeping of laboratory samples
- Verification and review nuclear magnetic resonance (NMR) outsourced test. Confirmed against reference structure. Calculated purity within a reviewed lab notebook and reported results against specification
- Development of statistical quality control SOP for ongoing data trending and assay performance tracking

Internship - QC Sorrento Valley, Ca

- Responsible for summer project consisting of data mining and producing trending reports for quality control assay data supporting various mrna therapy projects
- Learned and effectively utilized JMP software communicated project details to project stakeholders including company senior directors and C-Suite leadership
- Developed understanding of lean six sigma manufacturing methodology
- Developed knowledge of GxP guidelines and USP mRNA quality test procedures
- Shadowed analytical development scientist in bioanalytical and chemistry methodologies

SKILLS/INTERESTS

- **Software and Scripting Languages:** Python, R, Bash
- **Software Libraries**: Pandas, Altair, ggplot2, tidyr, dplyr, gapminder, Scikit-learn, Keras, PyTorch, Tensorflow, SHAP, Conda, Mamba
- **Bioinformatics Tools:** Bioconductor, Biopython, Nextflow, Snakemake, Qiime2, DADA2, DECIPHER, ALDEx2, Scikit-Bio, GATK, VCFtools, bcftools, bbtools, SPAdes, Minimap2, BWA, BLAST, Flye, Bandage, IGV
- **Laboratory Skills:** Digital PCR, RT-PCR, NGS Library prep, SDS-PAGE, LCMS
- **Miscellaneous Software:** JMP, Tableau, Excel
- Experience in utilizing High Performance Computing HPC Cluster environment