

ERICK J. ALVAREZ

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EDUCATION

UTAH VALLEY UNIVERSITY

Bachelor of Science

Major in Bioinformatics; Minor in Biology

Cumulative GPA: 3.69/4.0; Dean's List 2023 – 2025

Orem, UT

Apr 30, 2025

WORK EXPERIENCE

INNOVATIVE LABS

R&D Technical Services Specialist

Springville, UT

Jun – Aug 2025

- Troubleshoot and optimized liquid supplement formulations to address regulatory requirements and make organoleptic adjustments.
- Reviewed formulas and master manufacturing records for accuracy, completeness, and alignment with product specifications.
- Performed testing on product samples; pH, water activity, specific gravity, brix.

UTAH VALLEY UNIVERSITY ACADEMIC TUTORING

Supplemental Instructor

Orem, UT

Aug 2023 – May 2025

- Taught a supplemental course for BIOL 1610 (College Biology I) – covering introductory biochemistry, energetics and metabolism, cell structure and function, and genetics.
- Prepared engaging course sessions that emphasized student interaction.
- Collaborated closely with course professor and provided improvement feedback for other supplemental instructors.

UNIVERSITY OF MARYLAND INSTITUTE FOR ADVANCED COMPUTER STUDIES

BRiDGe REU Research Intern

College Park, MD

Jun – Aug 2024

- Conducted clinical data science research under Dr. Michael Cummings; internship funded by the NSF.
- Curated health records (~23k records across ~7k patients) and performed extensive network/statistical analyses to predict treatment outcomes at substance-use disorder facilities.
- Investigated the public's utilization of non-substance use disorder services at same facilities, emphasizing COVID-19 treatment.
- Designed R functions for collapsing ~1000 unique factor levels to only six.

RESEARCH EXPERIENCE

LIANG LAB

Undergraduate Researcher

Orem, UT

Jan – May 2025

- Conducted computational biology research analyzing differential gene expression in *Arabidopsis thaliana* exposed to heavy metal pollutants; in collaboration with West Virginia State University.
- Performed RNA-seq and gene ontology enrichment analyses using R to identify key genetic variations in cellular repair mechanisms.
- Curated large genomic datasets for efficient processing, analysis, and visualization.

DOMYAN/HOUGH LAB

Undergraduate Researcher

Orem, UT

Jan 2024 – May 2025

- Conducted synthetic biology research engineering *Chlamydomonas reinhardtii* for excess nutrient removal to combat algal blooms.
- Managed plasmid design and conducted gene editing, Golden Gate assembly, transformations, protocol troubleshooting, and literature research of the *nosZ* gene and the *C. reinhardtii* nitrogen pathway.
- Directed lab's community outreach and education efforts, including teaching high school classrooms synthetic biology.

HJELMEN LAB

Undergraduate Researcher

Orem, UT

Aug – Dec 2024

- Conducted genomics research on the relationship between organismal complexity and genome size in insects.
- Assisted in the compilation of a comprehensive *Diptera* genome size database and performed extensive background research on extremophilic insects.

- Collected halophilic flies (*Ephydra gracilis*) in the field, curated species and sex data, and prepared samples for genome size estimation and sequencing.

PRESENTATIONS

UTAH CONFERENCE ON UNDERGRADUATE RESEARCH

Cedar City, UT

“Bloom Buster: Engineering *Chlamydomonas reinhardtii* to combat toxic algal blooms”

Feb 28, 2025

- Presented a poster describing the methodologies, results, and future applications of our work on genetic engineering and synthesized eutrophication treatment.
- Designated as primary author of accepted abstract.

iGEM GRAND JAMBOREE

Paris, France

“Bloom Busters: Engineering *Chlamydomonas reinhardtii* to fight toxic algal blooms”

Oct 23 – 26, 2024

- Presented a multi-day talk at international competition. Covered the experimental design, methodologies, results, troubleshooting, and application of our genetically modified algae for phosphate sequestration and nitrate conversion.

VOLUNTEER EXPERIENCE

S.P.A.R.K.S. (Supporting Practical Achievement in Research and Knowledge in the Sciences)

Orem, UT

Vice President

Aug 2024 – May 2025

- Co-founded and directed a STEM program preparing underrepresented students and underclassmen for graduate school and the workforce through professional workshops.
- Responsible for administrative logistics, event organization, and workshop presentations.

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Mesa, AZ

Full-Time Representative/Social Media Specialist

Nov 2020 – Nov 2022

- 24-month representative for the LDS church; engaged in proselytizing, humanitarian aid, service, and community events.
- Business admin of local Facebook page (~19k followers); managed a monthly budget (\$4k) and produced ads; trained other missionaries and managed both online and community events.

ADDITIONAL

Technical Skills: Proficient in R, SQL, Python; Familiar with Bash

Languages: Fluent in English and Spanish