

# Gino Prasad

🏠 gino.bio | ✉️ ginoprasad@gmail.com | 🐙 github.com/GinoP123 | 🔗 linkedin.com/in/ginoprasad | 🎓 Google Scholar

Machine Learning | Bioinformatics | Computer Vision | Cancer Genomics | Data Science

## Education

### PhD in Computer Science, UC San Diego

#### NSF Graduate Research Fellow (Fall 2025 – Present)

Summer 2023 – Spring 2027

Academic Advisor: [Vineet Bafna](#), Professor of Computer Science, Bioinformatics and Systems Biology

GPA: 3.96 / 4.00

- **Focus:** Applied Machine Learning for Bioinformatics
- **Relevant Courses:** Deep Learning, Generative AI Modeling, Bioinformatics Algorithms, Recommender Systems, Population Genomics

### Bachelor of Science, Bioinformatics: UC San Diego

Fall 2020 - Spring 2023

Major: Bioinformatics (B.S.), Minor: Computer Science

GPA 3.97/4.0

- **Relevant Courses:** Machine Learning, Probability & Statistics, Genomics Research Lab, Linear Algebra, Data Structures, Algorithms

## Experience

### Data Science & Machine Learning Intern

Jun 2025 - Aug 2025

Genentech Research & Development (gRED Computational Sciences)

- Implemented an **LLM agent system** with **LangChain** for natural language querying and analysis of large-scale cell-line screening datasets.
- Trained ML models (LightGBM, Transformer Attention Networks) to predict **drug dose-response** from gene expression and cell line embeddings.
- Utilized **SHAP** for model interpretability, gaining insights into drug potency and **mechanisms of action**.
- **Technical Skills:** LLM Agents, LangChain, Deep Learning, Transformers, PyTorch, LightGBM, SHAP

### Machine Learning Graduate Researcher

Jun 2022 - Current

UC San Diego Bafna Lab

- Developed interSeg, an **AI Computer Vision** Model for detecting ecDNA cancer presence in FISH cell imaging.
- **InterSeg** predicts **cancer subtypes** (ecDNA/HSR) in In-Vitro Cell Lines and Patient Tissue Images.
- Co-authored **EvidenceBench**, a benchmark for assessing LLM reasoning performance on biomedical papers.
- **Technical Skills:** PyTorch, Tensorflow, OpenCV, Skimage, Pandas

### Computational Biology & Machine Learning Research Assistant

Oct 2021 - Jun 2023

UC San Diego Yeo Lab

- Built a **Convolutional Neural Network** for Spatial Transcriptomics Image data, to perform **nuclear segmentation**.
- Used a **U-Net Architecture** to predict nuclei boundaries, bypassing the need for DAPI staining.
- **Technical Skills:** Tensorflow, Keras, NumPy, Pandas, Pytorch, PyLab, Python, Linux, Git.

### Software Engineering Intern

Jun 2021 - Aug 2021

Dotdash

- Designed front-end software for Dotdash, the largest digital publisher in the US, managing sites like Investopedia and Verywell Health.
- Developed cross-platform web applications in a collaborative environment using Agile/Scrum.
- **Technical Skills:** JavaScript, Vue, HTML, SASS, Maven, Database querying, APIs.

### Phage Genomics Research Initiative

Oct 2020 - Jun 2021

UC San Diego Pogliano Lab

- Created a **BLAST parser website** using Google App Engine and Python ([GitHub](#)), used by the UCSD professor and class.
- Queries the NCBI BLAST data to perform comparative genomic analysis of Bacteriophage genes with unknown functions.
- **Technical Skills:** Flask, Python, Google Cloud App Engine.

## Journal Publications

Rajkumar\*, Prasad\*, et al., Accurate Prediction of ecDNA in Interphase Cancer Cells using Deep Neural Networks.

*bioRxiv Preprint*, <https://doi.org/10.1101/2025.06.23.661188> (Co-First Author Publication)

Wang et al. (2025), EvidenceBench: A Benchmark for Extracting Evidence from Biomedical Papers.

*Conference On Language Modeling*, <https://doi.org/10.48550/arXiv.2504.18736>

Luebeck et al. (2025), AmpliconSuite enables discovery of extrachromosomal DNA in tumor genomes.

*American Association for Cancer Research*, <https://doi.org/10.1158/1538-7445.AM2025-3755>

Dehkordi et al. (2025), Breakage fusion bridge cycles drive high oncogene number with moderate intratumoural heterogeneity.  
*Nature Communications*, <https://doi.org/10.1038/s41467-025-56670-8>

Lv et al. (2025), Spatial-Temporal Diversity of Extrachromosomal DNA Shapes Urothelial Carcinoma Evolution and Tumor-Immune Microenvironment.  
*Cancer Discovery*, <https://doi.org/10.1158/2159-8290.CD-24-1532>

Luebeck et al. (2024), AmpliconSuite: Analyzing focal amplifications in cancer genomes.  
*Cancer Genetics*, <https://doi.org/10.1016/j.cancergen.2024.08.015>

Mah et al. (2024), Bento: A toolkit for subcellular analysis of spatial transcriptomics data.  
*Genome Biology*, <https://doi.org/10.1186/s13059-024-03217-7>

Chapman et al. (2023), Circular extrachromosomal DNA promotes inter- and intratumoral heterogeneity in high-risk medulloblastoma.  
*Nature Genetics*, <https://doi.org/10.1038/s41588-023-01551-3>

Prichard et al. (2023), Identifying the core genome of the nucleus-forming bacteriophage family and characterization of Erwinia phage RAY.  
*Cell Reports*, <https://doi.org/10.1016/j.celrep.2023.112432>

## Achievements

June 2025	<b>NSF Graduate Research Fellowship</b> , Awarded for Outstanding Achievement in ML/Bioinformatics Research	<i>National Science Foundation (NSF)</i>
Oct 2024	<b>Cancer Grand Challenge eDynamic Conference</b> , Presented a Computer Vision Model for Cancer Imaging	<i>Cancer Grand Challenge (NCI)</i>
Oct 2024	<b>Cancer Grand Challenge Future Leaders Speaker</b> , Presented on AI applications in Cancer Research	<i>Cancer Grand Challenge (NCI)</i>
June 2023	<b>Summa Cum Laude Honors</b> , Awarded for Exceptional GPA.	<i>UC San Diego</i>
April 2023	<b>Undergraduate Research Conference</b> , Presented on Computer Vision methods for FISH Imaging.	<i>UC San Diego</i>
Jul 2020	<b>UCSD BioScholars Honors Society Member</b> , Awarded membership based on academic achievement.	<i>UC San Diego</i>



## Skills

<b>Machine Learning</b>	Experience With <b>Transformer Architectures</b> , <b>Convolutional Neural Networks</b> , and <b>ResNet Autoencoders</b> .
<b>Bioinformatics</b>	Research Focus in developing <b>AI Models</b> for <b>Cancer Genomics</b> and Tumor Modeling.
<b>Programming</b>	Python (PyTorch, Tensorflow, Keras, Pandas, NumPy), R, C++, Cloud Computing, Bash, Linux, Git, JavaScript, Java, SQL.

## Mentoring

2023 - 2024	<b>Data Science Capstone Mentor</b> , Mentored 3 Data Science undergrads in a Computer Vision capstone competition to semantically segment cell imaging data using deep learning.	<i>UC San Diego</i>
2023 - 2024	<b>Early Research Scholars Program Mentor</b> , Mentored 2 Computer Science undergrads in a project to extract mutational signatures from The Cancer Genome Atlas (TCGA) genome sequencing data.	<i>UC San Diego</i>

## Personal Projects

<b>Autotune Implementation Using Phase Vocoder</b>  <a href="https://github.com/GinoP123/AutotunePV.git">github.com/GinoP123/AutotunePV.git</a> <ul style="list-style-type: none"><li>Created an autotuner from scratch using Phase Vocoders and Yin pitch prediction.</li><li>Able to autotune any audio clip to a specific major or minor scale using Hann window functions.</li><li>Examples of popular songs autotuned <a href="#">here</a>.</li></ul>	<i>May 2023</i>
<b>Custom Search Engine for Linux File System</b>  <a href="https://github.com/GinoP123/FileSearch">github.com/GinoP123/FileSearch</a> <ul style="list-style-type: none"><li>Created a keyword-matching search engine with caching fully from scratch using dynamic programming.</li><li>Added learning capability by including popularity and relevance weights.</li><li>I personally use this tool all the time, and find it a huge time-saver for navigating in Linux.</li></ul>	<i>Jul 2022</i>