Gino Prasad

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Machine Learning | **Computer Vision** | **Bioinformatics** | **Data Science**

Education

PhD in Computer Science, UC San Diego
NSF Graduate Research Fellow (Fall 2025 – Present)
Fall 2023 – Spring 2027

Academic Advisor: Vineet Bafna, Professor of Computer Science
GPA: 3.96 / 4.00

- **Focus:** Applied Machine Learning and Computer Vision
- **Relevant Courses:** Deep Learning, Generative AI, Recommender Systems, 3D Physics Simulation, LLM Modeling

Bachelor of Science, Bioinformatics: UC San Diego
Fall 2020 - Spring 2023

Major: Bioinformatics (B.S.), Minor: Computer Science
GPA: 3.97 / 4.00

- **Relevant Courses:** Machine Learning, Optimization, Data Structures & Algorithms, Physics (Optics/Fluids), Linear Algebra

Experience

Machine Learning / Software Engineering Intern
Jun 2025 - Aug 2025

Genentech Research & Development (gRED Computational Sciences)

- Developed a **AI Computer Vision Model (VAE)** of **5M+** Cell Imaging Data samples of cancer cell lines to predict cell lifecycle stage.
- Engineered a **scalable ML pipeline** with Gradient Boosting Decision Trees for **high-throughput regression** on screening data.
- Implemented an **LLM agent system** with **LangChain** for natural language querying and analysis of large-scale screening datasets.
- **Technical Skills:** Transformers, PyTorch, Scikit-Image, LLM Agents, LangChain, Deep Learning

Machine Learning Graduate Researcher
Jun 2022 - Current

UC San Diego Bafna Lab

- Developed interSeg, an **AI Computer Vision** Model for **classification in biomedical imaging** achieving high predictive accuracy
- **InterSeg** predicts cancer subtypes in In-Vitro Cell Lines and Patient Tissue **Imaging Data**.
- Co-authored **EvidenceBench**, a benchmark for assessing **LLM reasoning** performance on biomedical papers.
- **Technical Skills:** Object Detection, PyTorch, TensorFlow, OpenCV, Skimage, Pandas

Machine Learning & Computational Biology Research Assistant
Oct 2021 - Jun 2023

UC San Diego Yeo Lab

- Built a **Convolutional Neural Network** for Spatial Transcriptomics Image data, to perform **semantic 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

People Inc.

- Designed front-end software for People Inc., 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.

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

Skills

Machine Learning	Experience With **Computer Vision, Generative AI, Transformer Architectures,** and **Convolutional Neural Networks**.
Computer Vision	Research Focus in developing **AI Models** for **Cancer Imaging** and Tumor Modeling.
Programming	Python (PyTorch, TensorFlow), C++, Java, Cloud Computing, Bash, Linux, Git, JavaScript, SQL.

Mentoring

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

Personal Projects

Autotune Implementation Using Phase Vocoder

github.com/GinoP123/AutotunePV.git   *May 2023*
- Created an autotuner from scratch using Phase Vocoders and Yin pitch prediction.
- Able to autotune any audio clip to a specific major or minor scale using Hann window functions.
- Examples of popular songs autotuned here.

Custom Search Engine for Linux File System

github.com/GinoP123/FileSearch   *Jul 2022*
- Engineered a **high-performance** search engine (Python) using dynamic programming and in-memory caching for low-latency search.
- Added learning capability by including popularity and relevance weights.
- I personally use this tool all the time, and find it a huge time-saver for navigating in Linux.