Laya Pullela

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Summary

- Computer Science BS/MS student at UCSB with background in ML, signal processing, and chemistry.
- Student in the prestigious Creative Studies program at UCSB focused on early research.
- PhD applicant in CS with research interest in graph machine learning, signal processing, drug discovery, and other chemical/medical applications.

Education

University of California, BS/MS in Computer Science — Sept 2021 – May 2025

- Major GPA: 3.90/4.0 (Transcript)
- **Core CS Coursework:** Data Structs/Algos, Operating Systems, Architecture, Compilers, Matrix Analysis, Scientific Computing, Automata Theory
- **ML Coursework:** Graph Machine Learning, Computer Vision, Deep Learning
- **Interdisciplinary Coursework:** Signals/Systems, Signal Analysis, Linear Algebra, DSP, General Chemistry, Biochemistry, Probability and Statistics

Publications

Predicting the Temporal Dynamics of Prosthetic Vision[†] — May 2024

Yuchen Hou[*], **Laya Pullela**[*], Jiaxin Su, Sriya Aluru, Shivani Sista, Xiankun Lu, and Michael Beyeler
*(*equal contribution), ([†]selected for oral presentation)*

arXiv: 2404.14591

NutriBench: A Dataset for Evaluating Large Language Models in Nutrition Estimation from Meal Descriptions (ICLR review) — October 2024

Andong Hua[*], Mehak Preet Dhaliwal[*], **Laya Pullela**, Ryan Burke, and Yao Qin

arXiv: 2407.12843

Developing Generalized Predictive Models of Various Conditions using the Pediatric MIMIC-3 Database — Spring 2023

Erik Alvstad, **Laya Pullela**[*], Howard Lei, Anthony Chang
*(*presenting author)*

Poster Link

Awards

UCSB Computer Science Outstanding Undergrad Research: Honorable Mention — June 2024

- Awarded to four undergrad students.
- Nominated by Prof. Michael Beyeler.

Research and Teaching Experience

Research Assistant at Yao Qin Lab, UCSB – Goleta, CA — March 2024 – Present

- Investigating alignment methods to enhance the robustness of multimodal vision-language models (LLaVA) against adversarial attacks.
- Finetuning the LLaVA model to improve rejection of adversarial examples and refining projections between vision and language data using GAN-inspired training methods.
- Benchmarking improvements against MMSafety-Bench to evaluate model robustness.

Research Assistant at Bionic Vision Lab, UCSB – Goleta, CA — Sept 2022 – March 2024

- Co-first authored a paper accepted by the IEEE EMBC 2024 Conference: Predicting the Temporal Dynamics of

Prosthetic Vision.

- Developed a spectral model using wave decomposition techniques to predict the temporal dynamics of prosthetically stimulated visual percepts, surpassing state-of-the-art models by 30
- Experienced in benchmarking models and writing manuscripts.

Lead Data Science Intern, Children's Hospital OC (CHOC) – Orange, CA June 2022 – Aug 2023

- Selected as Lead Researcher, mentoring five undergraduate interns on a project exploring pediatric anxiety diagnosis.
- Engineered the project's core algorithm using unsupervised learning to identify patterns across six key socioeconomic and demographic features.
- Presented a poster at the Pediatric Academic Societies Conference in Spring 2023 listed in publications.

Computer Science Learning Assistant, UC Santa Barbara – Goleta, CA March 2023 – Present

- Served as a ULA three times for CS40 (Discrete Math) and CS32 (Object-Oriented Programming).
- Lead office hours, review sessions, and answered students' questions on Piazza.
- Assisted with developing course material, midterm, and final exams for discrete mathematics.

Industry Experience

Software Engineering Intern, Pinterest – San Francisco, CA June 2024 – Sept 2024

- Developed 'Shop the Look' module for unauthenticated users and search engine bots, significantly enhancing user engagement and SEO visibility.
- Architected and optimized backend offline tables and implemented ad-hoc jobs to ensure rapid rendering of shoppable content, reducing load times and improving user experience.
- Boosted clickthrough rates and impressions on shoppable pages by 6
- Developed in JavaScript (Frontend), Flask (API), Scala (Backend Tables), and Apache Airflow (Ad-hoc Jobs).

Data Science Intern, Alignment Healthcare – Orange, CA June 2023 – Sept 2023

- Launched a beta ML application with a user interface to extract relevant information from medical faxes, alleviating manual data entry.
- Created a fine-tuned LLM feature using QLora on BiomedLM and Meta Llama to assign ICD10 codes, improving performance by over 3x compared to the existing engine.
- Achieved 85% model accuracy in entity recognition and nearly 100% in patient matching within the database.

Technologies

Languages: C++, Java, Javascript, Python, Scala, MATLAB

Frameworks PyTorch, Tensorflow, PySpark