

Daniel Chang

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Education

UCLA Sept 2022 – June 2026

- **B.S. in Computational and Systems Biology**, *Biological Data Sciences Track*
- **GPA:** 3.8/4.0
- **Coursework:** Algorithms (CS 180), Biostatistics (BIOSTATS 100), Data Science & Statistics (CS BIO 100), Digital Imaging & Processing (CS BIO M130), Statistics of Biological System (LS 40), Linear Algebra (33A), Differential Equations (33B)

Experience

Researcher, Dynamic Nucleic Acid Systems Lab, Elisa Franco December 2025 – June 2026

- Built an automated Python pipeline using Cellpose's pretrained models to segment biomolecular condensates and nuclei in multi-channel Z-stack fluorescence microscopy images (55 slices), replacing a manual labeling workflow.
- Validated pipeline outputs against pre-labeled ROIs from the JABr dataset by computing condensate density, dilute density, and partition coefficients and comparing with established reference values.
- Extended the pipeline to automate classification of condensates as nuclear or cytoplasmic based on spatial overlap with segmented nuclei.

Learning Assistant, LS 30B: Mathematics for Life Scientists – UCLA January 2026 – June 2026

- Assisted in weekly Python lab sections of 30 students and office hours (15–20 students), teaching biological modeling concepts including ODE simulations, trajectory plotting, and eigenvalue analysis using NumPy, Matplotlib, and SciPy.
- Guided non-CS majors through debugging and conceptual understanding, consistently rated by students for clear explanations and connecting coding concepts to lecture material.
- Checked in with students during labs, breaking down complex problems into smaller steps to build confidence and independent problem-solving skills.

Full Stack Developer, Blueprint October 2023 – January 2026

- Developed web and mobile apps for Southern CA non-profits alongside designers and developers in weekly work sessions, delivering features in sprints.
- Collaborated with UI/UX designers, turning Figma mock-ups into responsive React components and API endpoints while meeting weekly sprint goals.
- Mentored junior members through internal workshops on React patterns, Git workflows, and deployment best practices.

Projects

Gene Expression Age Prediction Analysis

- Python pipeline analyzing 2,153 GTEx RNA-seq samples across 26K+ genes; applied PCA, linear regression with 5-fold cross-validation, and 10,000-iteration bootstrap resampling to predict donor age across four human tissues.

NF κ B Signaling Dynamics Model

- Python delay differential equation model of NF κ B inflammatory signaling with dual I κ B feedback loops; ran parameter sweeps over promoter delay and IKK stimulus strength to characterize oscillation amplitude and frequency across conditions.

Hospital Data Quality Pipeline

- SQL and PySpark pipeline that profiles and cleans 51K hospital patient records; uses SQL queries to detect duplicates, invalid ICD-10 codes, and out-of-range vitals, standardizes and outputs clean data

Global Green Web App

- Next.js application for non-profit Global Green, enhancing education through interactive lessons/quizzes. Implemented front-end interfaces, integrated MongoDB for dynamic content, and collaborated closely with designers/developers.

Skills

- **Languages:** Python, SQL, C++, JavaScript, HTML/CSS
- **Libraries:** pandas, NumPy, SciPy, scikit-learn, Matplotlib, PyTorch, PySpark, React, Next.js, React Native, Node.js
- **Tools:** Git, MongoDB, Firebase, LaTeX, Figma