CV

Nicholas M. Nunley | nicknunley17@ucla.edu | GitHub | Linkedin | Los Angeles, CA

Biomedical researcher passionate about applying mathematical theory and developing software to solve problems in biology

Experience

Staff Research Associate

University of California Los Angeles (2022 - present)

- Conducting research in two labs investigating metabolic and transcriptional reprogramming across prostate cancer disease states:
  - Goldstein lab
  - Boutros lab
- Leading two distinct projects in parallel
- Hands-on experience in culturing and performing experiments with ~8 different prostate cancer model systems:
  - Lentiviral transductions
  - Immunoblotting
  - Metabolic tracing assays
  - Viability assays
- Developing and applying computational pipelines for transcriptional analysis
- Developing an R datasets package containing processed transcriptional data from over 200 samples across seven different studies at release:
  - Performed data curation and quality assessment where I detected and corrected sample swaps in external datasets
  - Developed an object-oriented dataset class using the S4 system to enable easy access to metadata, sample information, and analysis methods
  - Added gene set enrichment analysis and meta-analysis features
  - Implemented a gene identifier mapping system to enable cross-species analysis without relying on external databases
  - Resolved graphics-rendering failures caused by memory limits and label collisions in enrichment and volcano plots using custom downsampling and cartesian coordinate offsetting algorithms
  - Extended the default lattice axes labeling system to support logarithmic axes
  - Implemented a custom colour-mapping engine based on deriving and using an affine RGB transformation matrix, enabling continuous two-colour gradients and three-colour (diverging) schemes

Lead K-12 Mathematics Instructor

Mathnasium, LLC (2019 - 2021)

- Provided one-on-one and group tutoring in foundational mathematics (e.g. algebra, geometry, trigonometry, calculus) and other general science courses
- Managed learning center operations on weekends:
  - Administered assessments to new students
  - Managed student learning plans
  - Followed up with leads
  - Scheduled and matched instructors with students

Education

BS: Biochemistry

University of California Los Angeles (2020-2022)

- Conducted biomedical research while completing undergraduate coursework
- Completed a graduate-level course in mass spectrometry proteomics, and upper-division electives in mathematics and machine learning

AA (honors): Social and Behavioral Science

Santa Monica College (2015-2020)

- Explored multiple academic tracks before transitioning to STEM
- Worked part-time in service roles and as a peer tutor for foundational science and math courses

Skills

Python programming

R programming

NumPy

pandas

Unix

Machine learning

Data science

Statistics

Transcriptomics

Metabolomics

Nextflow

git

Docker

CI/CD

High-performance computing

Pipeline development and applications

Applied mathematics

Network analysis

Simulation-based inference

Biomedical experimental design

Mammalian cell culture

Immunoblotting

Microscopy and IHC

Cellular respirometry

Scientific communication

Mentorship