Rithwik Narendra

rithwiknarendra@ucla.edu | (408)7121274

EDUCATION

University of California, Los Angeles **Los Angeles, CA**
Bachelor of Science – Computational and Systems Biology *September 2022 – June 2026*
Concentration in Bioinformatics, Minor in Geography
Cumulative GPA: 4.00/4.00

Relevant Coursework: Statistical Methods in Computational Biology (g), Quantitative Signal Transduction, Machine Learning, Biological Modeling: Mathematical and Computational Approaches, Human Genetics and Genomics, Methods in Computational and Systems Biology Research, Introduction to Computer Science, Human Physiology, Probability, Introduction to Biostatistics, Linear Algebra, Differential Equations, Integration and Infinite Series
(g) – graduate course

RESEARCH AND WORK EXPERIENCE

Department of Biomedical Informatics, Harvard Medical School: Farhat Lab **Boston, MA**
Dr. Susanne E. Churchill Summer Institute in Biomedical Informatics Intern *June 2025 – Present*

- Work under Dr. Maha Farhat
- Bult a feature extraction pipeline to annotate bacteriophage and mycobacterium abscesses genomes
- Constructed a state space model architecture to "discover biology" by generating dense embeddings on bacterium and bacteriophage genomes to use as features in machine learning models
- Developed a cross-validated machine learning classifier to predict efficiency of plating for a bacteriophage and bacteria interaction (AUC = 0.97, F1 = 0.86)

University of California, San Francisco: Langelier Lab **San Francisco, CA**
Bioinformatics Intern *July 2023 – Present*

- Work under Dr. Charles Langelier
- Co-led two projects investigating inflammaging and disease trajectory utilizing differential gene expression analysis, gene set enrichment analysis, unsupervised clustering, linear regression, and machine learning
- Developed machine learning pipelines in Python and R with cross-validation to integrate and analyze 2000+ samples of bulk and single-cell gene expression and metagenomics data
- Built a machine learning classifier using LASSO and RFE to predict COVID trajectories (AUC = 0.88)
- Analyzed gene expression, pathway dynamics proteomics, and methylation to quantify relationships between aging and inflammation in Lupus
- Presented insights on pathway activation differences in nasal and blood cells to a consortium of principal investigators
- Explored pathway dysregulation due to mortality in Sepsis patients

University of California, Los Angeles: Wells Lab **Los Angeles, CA**
Dry Lab Undergraduate Researcher *October 2023 – Present*

- Work under Dr. Michael F Wells
- Led the development of a pipeline to identify significant expression quantitative trait loci (EQTLs) from a diverse set of stem cell samples exposed to a variety of perturbations
- Collaborated with PhD students on a comprehensive single-cell RNA-seq analysis pipeline in R incorporating clustering, co-expression, and linear regression techniques (Seurat, Limma, WGCNA) to analyze neurodevelopment
- Developed in-silico A/B testing frameworks in R for 10GB+ integrated stem cell datasets
- Taught differential pathway and network analysis concepts to PhD and postdoctoral researchers

University of California, San Francisco: Wilson Lab **San Francisco, CA**
Computational Research Student *June - September 2020, June - November 2021*

- Work under Dr. Michael Wilson
- Co-developed a pipeline to process and filter over 400 genomic samples to obtain information about pathogen presence
- Applied ML classifiers and seaborn visualization tools to optimize pathogen detection in low-resource settings

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PUBLICATIONS

Narendra R, Van Phan H, Patterson SL, Almonte-Loya A, Lydon EC, Lanata C, Love C, Park J, Shimoda M, Barcellos L, Mekonen H, Detweiler A, Deosthale P, Neff N, Criswell LA, Maliskova L, Eckalbar W, Fragiadakis GK, Yazdany J, Dall'Era M, Katz P, Ye CJ, Sirota M, Langelier CR. Epigenetic attenuation of interferon signaling is associated with aging-related improvements in systemic lupus erythematosus. **Science Translational Medicine**. 2025 Jun 25;17(804):eadt5550. doi: 10.1126/scitranslmed.adt5550.

Narendra R, Lydon EC, Van Phan H, Spottiswoode N, Neyton LP, Diray-Arce J; IMPACC Network; COMET Consortium; EARLI Consortium; Becker PM, Kim-Schulze S, Hoch A, Pickering H, van Zalm P, Cairns CB, Altman MC, Augustine AD, Bosinger S, Eckalbar W, Guan L, Jayavelu ND, Kleinstein SH, Krammer F, Maecker HT, Ozonoff A, Peters B, Rouphael N, Montgomery RR, Reed E, Schaenman J, Steen H, Levy O, Carillo SA, Erle D, Hendrickson CM, Krummel MF, Matthay MA, Woodruff P, Haddad EK, Calfee CS, Langelier CR. Minimalistic Transcriptomic Signatures Permit Accurate Early Prediction of COVID-19 Mortality. **medRxiv [Preprint].** 2025 May 19:2025.05.18.25327658. doi: 10.1101/2025.05.18.25327658.

Spottiswoode N, Neyton LP, Mick E, Kalantar KL, Hao S, Lydon EC, **Narendra R**, Serpa PH, Caldera S, Gomez A, Hendrickson C, Kangelaris K, Liu KD, Sinha P, DeRisi JL, Matthay MA, Calfee CS, Langelier CR. Host-Microbe Multiomic Profiling Predicts Mortality in Sepsis. **Am J Respir Crit Care Med**. 2025 Aug 11. doi: 10.1164/rccm.202410-1996OC. PMID: 40788839.

Ramachandran PS, Ramesh A, Creswell FV, Wapniarski A, **Narendra R**, Quinn CM, Tran EB, Rutakingirwa MK, Bangdiwala AS, Kagimu E, Kandole KT, Zorn KC, Tugume L, Kasibante J, Ssebambulidde K, Okirwoth M, Bahr NC, Musubire A, Skipper CP, Fouassier C, Lyden A, Serpa P, Castaneda G, Caldera S, Ahyong V, DeRisi JL, Langelier C, Crawford ED, Boulware DR, Meya DB, Wilson MR. Integrating central nervous system metagenomics and host response for diagnosis of tuberculosis meningitis and its mimics. **Nature Communications**. 2022 Mar 30;13(1):1675. doi: 10.1038/s41467-022-29353-x.

ACTIVITIES & LEADERSHIP

Data Science Union at UCLA **Los Angeles, CA**

Project Lead, Project Mentor *September 2022 – Present*

- Led a team to develop regional health policy recommendations using PCA, linear regression, and geospatial EDA
- Developed a custom tokenizer and transformer using TensorFlow and Pytorch to generate Supreme Court opinions
- Built scikit-learn logistic classifiers to predict presidential election outcomes (R2 = 0.82) from demographic data

Bruin Review at UCLA **Los Angeles, CA**

President, Director of Satire, Editor, Writer *September 2022 – Present*

- Lead a team of 80+ writers, artists, and content producers in UCLA's largest opinion and satire writing club
- Organize meetings and delegate responsibilities to a diverse leadership team
- Facilitate fundraising and coordinate internal and external events
- Wrote and published eighteen satire and opinion pieces on a variety of topics, from body image to strikes

Elects **Remote**

Podcast script writer, Lithuania, El Salvador, and Iceland Correspondent *October 2023 – Present*

- Collaborated with the "Europe Elects Podcast" hosts to research European political developments and write podcast scripts
- Created graphics visualizing polling and approval numbers for El Salvador's 2024 elections (1M+ X impressions)
- Crafted a report for the European Green Party contextualizing recent political developments in Iceland
- Provided detailed election result analysis for Lithuania, Iceland, and El Salvador
- Interviewed by EU Made Simple: www.youtube.com/watch?v=vk2EaM4-gTk&ab_channel=EUMadeSimple

Decision Desk HQ **Remote**

Manager *June 2022 – Present*

- Provided real-time updates of election results to assist with election projections during the 2022 midterm cycle
- Managed and coordinated a team of 45+ on-the-ground reporters in New Hampshire, bolstering the election projection capabilities of DDHQ, often surpassing other prominent decision desks (FOX, AP, and NYT)

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Matriculate at UCLA **Los Angeles, California**
Advising Fellow *January 2024 – Present*

- Supported four high school students with low-income backgrounds through the college admissions process
- Scheduled meetings with students to review essays, application requirements, and financial aid checklists

SKILLS

Software Skills: R, Python, C++, SQL, Pandas, NumPy, TensorFlow, Java, Linux

Analysis Skills: Omics analysis, linear regression, machine learning, single cell analysis

Other Skills: Chess, Teamwork, Public Speaking