Kian Faizi

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Education

California Institute of Technology PhD in Systems Biology	Pasadena, CA Sep. 2021 – present
University of California, San Diego	La Jolla, CA
BS in Molecular Biology, Minor in Mathematics (GPA: 3.75)	Aug. 2017 – June 2021
Research	
California Institute of Technology	Pasadena, CA
PhD Student, Dr. Rob Phillips	Sep. 2021 – present
• Studying transcriptional regulation and nutrient ecology in E. coli [7]	
• Expanding <u>anthroponumbers.org</u> , a database quantifying human impacts on the planet	
Harvard Medical School	Boston. MA
Visiting Postgraduate Fellow, Dr. Pam Silver	June 2022 – Aug. 2022
• Developed tools for chloroplast engineering in microalgae [3,8]	C C
• On sabbatical from Caltech as an inaugural New Science fellow	
Salk Institute for Biological Studies	La Iolla CA
Lab Technician, Dr. Wolfgang Busch	Nov. 2019 – Sep. 2021
 Investigated Pareto-optimal trade-offs in the Arabidopsis root system using high-throughput phenotyping and graph-theoretic modeling [2] Built software for time-series segmentation and analysis of root images 	Ĩ
• Helped develop algorithms for plant phenotyping from LIDAR point clouds [1]	
• Quantified root responses to nutrient stress using time-lapse microscopy [5]	
Volunteer Research Assistant, Dr. Patrick Hsu	Nov. 2018 – Nov. 2019
 Developed an automated pipeline to mine over 20 TB of metagenomic sequence data for new orthologs of CRISPR-Cas13d Assisted with a pooled CRISPR screen to optimize guide RNA design [6] 	
Teaching	
Evolution Teaching Assistant Caltech	2024
Physical Biology Bootcamp Teaching Assistant Caltech	2024
Current Research in Biology and Biological Engineering Teaching Assistant Caltech	2023, 2024
The Great Ideas of Biology Head Teaching Assistant Caltech	2023, 2024
Principles of Biology Teaching Assistant Caltech	2022
Genetic Inquiry Instructional Assistant UCSD	2020
Mentorship, Leadership, and Service	
Technical advisor for various climate-focused funding programs:	2023 - present
• Homeworld Collective Garden Grants; reviewed proposals on protein engineering for	
sustainability (\$1M awarded)	
• 50 r Mannest Chinate Grants; evaluated Tast grants for high-risk, high-reward chinate biotech projects (\$1M awarded)	
• Caltech Rocket Fund; prepared and presented due diligence reports on cleantech star-	
tups competing for non-dilutive funding (\sim \$800K awarded)	
Research mentor for visiting students:	2023 - present
• G. Milo: modeling freshwater eutrophication and algal blooms	

• S. Bhattacharya, A. Bhate: mapping human impacts on global phosphorus cycling	
Caltech Rocket Fund On editorial staff for a monthly newsletter on climate entrepreneurship 	2023 – present
Innovation ExpoVolunteer judge for Pasadena Unified School District's annual K-8 science fair	2023, 2024
Caltech Biology Recruitment Co-organized recruitment weekend events for prospective PhD students 	Jan. 2023
Caltech Teaching Conference Facilitated a workshop on effective pedagogy for new teaching assistants 	Sep. 2022
 Caltech Accountability Partners Program Matched with undergraduates to support them during the graduate school application process via <u>FUTURE Ignited</u>, a program advancing diversity in STEM 	Aug. 2022 – Feb. 2023
Caltech Mycology Club Worked with undergraduates to establish Caltech's first indoor co-op mushroom farm 	Dec. 2021 – present
UCSD Tritons ConnectProvided <i>pro bono</i> mentorship to undergraduates and alumni interested in bioscience	May 2021 – present
 UCSD Undergraduate Bioinformatics Club Helped organize the Southwestern Bioinformatics Conference (formerly the Faculty-Industry Bioinformatics Symposium) Manned our booth at the San Diego Science and Engineering Festival to teach the community about DNA sequencing 	Nov. 2017 – June 2021

Publications

[8] Faizi K, McCarty N, and Targ S. Free-living chloroplasts: a preliminary investigation. *New Science* (2024). <u>new-science.org</u>

[7] Pan RW, Röschinger T, Faizi K, and Phillips R. Dissecting endogenous genetic circuits from first principles. arXiv (2024). 10.48550/arXiv.2401.15880

[6] Wei J, Lotfy P, Faizi K, Baungaard S, Gibson E, Wang E, Slabodkin H, Kinnaman E, Chandrasekaran S, Kitano H, Durrant MG, Duffy CV, Pawluk A, Hsu PD, and Konermann S. Deep learning and CRISPR-Cas13d ortholog discovery for optimized RNA targeting. *Cell Systems* (2023). 10.1016/j.cels.2023.11.006

[5] Platre MP, Mehta P, Halvorson Z, Zhang L, Brent L, Matias GF, **Faizi K**, Goulding C, and Busch W. Root Walker: an automated pipeline for large scale quantification of early root growth responses at high spatial and temporal resolution. *The Plant Journal* (2023). 10.1111/tpj.16493

[4] Faizi K. In Defense of Basic Science. Caltech Letters (2022). caltechletters.org

[3] Faizi K. Reversing 1.5 Billion Years of Evolution. New Science (2022). 10.56416/720qud

[2] Faizi K, Platre MP, Chandrasekhar A, Navlakha S, and Busch W. Network design principles in the *Arabidopsis* root system. (in prep).

[1] Ziamtsov I, Faizi K, and Navlakha S. Branch-Pipe: Improving graph skeletonization around branch points in 3D point clouds. *Remote Sensing.* (2021). 10.3390/rs13193802

Honors and Awards

New Science Summer Fellowship (\$33,000) New Science Inc.	Mar. 2022
Halıcıoğlu Data Science Institute Scholarship Project Award UCSD	May 2021
DOE CSGF Honorable Mention Krell Institute	Apr. 2021
Halıcıoğlu Data Science Institute Scholarship (\$2,500) UCSD	Dec. 2019
Eureka! Scholarship (\$5,000) UCSD	June 2019

Skills

Laboratory: microbiology, cell/tissue culture, cloning, molecular biology, CRISPR, optical microscopy Computational: Python, Linux system administration, web development Organizational: Git, LATEX