

Kian Faizi

kian@caltech.edu | kianfaizi.com | github.com/kfaizi

EDUCATION

California Institute of Technology

Ph.D. in Systems Biology

Sep. 2021 – present

Pasadena, CA

University of California, San Diego

B.S. in Molecular Biology, Minor in Mathematics (GPA: 3.75)

Aug. 2017 – June 2021

La Jolla, CA

- Selected coursework: Bioinformatics, Biophysics, Computational Linear Algebra, Dynamical Systems, Gene Regulation, Gene Editing, Statistics, Stochastic Processes

International School of Kuala Lumpur

I.B. Diploma, Earth Club President, Varsity Basketball Team Captain

Aug. 2013 – June 2017

Kuala Lumpur, Malaysia

EXPERIENCE

Rotation Student

Lab of Rob Phillips, Caltech

Sep. 2021 – Dec. 2021

Pasadena, CA

- Studying transcriptional regulation in *E. coli* using statistical mechanics

Lab Technician

Lab of Wolfgang Busch, Salk Institute for Biological Studies

Nov. 2019 – Sep. 2021

La Jolla, CA

- Investigated Pareto-optimal trade-offs in the *Arabidopsis* root system using high-throughput phenotyping and graph-theoretic modeling [1]
- Created a GUI for time-series segmentation and analysis of root images
- Helped develop algorithms for plant phenotyping from noisy 3D point clouds [2]
- Quantified root responses to nutrient deficiency using time-lapse optical microscopy
- Built a pipeline for co-expression network analysis of scRNA-seq data to identify genetic targets for crop engineering

Volunteer Research Assistant

Lab of Patrick Hsu, Salk Institute for Biological Studies

Nov. 2018 – Nov. 2019

La Jolla, CA

- Developed an automated pipeline to mine over 20 TB of metagenomic sequence data for new orthologs of CRISPR-Cas13d
- Helped perform a pooled 150,000-guide Cas13d screen in K562s to optimize gRNA design [p1]

PUBLICATIONS

[1] Network design principles in the *Arabidopsis* root system.

- Kian Faizi, Matthieu Platre, Arjun Chandrasekhar, Saket Navlakha, and Wolfgang Busch. *In prep.*

[2] Branch-Pipe: Improving graph skeletonization around branch points in 3D point clouds.

- Illia Ziamtsov, Kian Faizi, and Saket Navlakha. *Remote Sensing*. (2021) doi:[10.3390/rs13193802](https://doi.org/10.3390/rs13193802)

PREPRINTS

[p1] Deep learning of Cas13 guide activity from high-throughput gene essentiality screening.

- Jingyi Wei, Peter Lotfy, Kian Faizi, Hugo Kitano, Patrick D. Hsu, and Silvana Konermann. *bioRxiv*. (2021) doi:[10.1101/2021.09.14.460134](https://doi.org/10.1101/2021.09.14.460134)

TEACHING

Undergraduate Instructional Apprentice | UCSD

Aug. 2020 – Dec. 2020

- For *Genetic Inquiry*, supervised by Stanley Lo

POSTERS AND PRESENTATIONS

Co-expression analysis of single-cell RNA-seq data <i>Talk</i> <ul style="list-style-type: none">• HDSI Research Conference	Oct. 2020
Mining Genomes for RNA-Targeting CRISPR Effectors <i>Talk</i> <ul style="list-style-type: none">• UCSD Summer Research Conference	Aug. 2019
Metagenomic Discovery of Type VI-D CRISPR Effectors <i>Poster</i> <ul style="list-style-type: none">• UCSD Biology Student Research Showcase	June 2019

HONORS AND AWARDS

Halicioglu Data Science Institute Scholarship Project Award <i>UCSD</i>	May 2021
DOE CSGF Honorable Mention <i>Krell Institute</i>	Apr. 2021
Halicioglu Data Science Institute Scholarship <i>\$2,500</i> <i>UCSD</i> <ul style="list-style-type: none">• Project: <i>Single-cell transcriptomics and web mining for rapid reverse genetics in plants</i>, proposed under Wolfgang Busch	Dec. 2019
Eureka! Scholar <i>\$5,000</i> <i>UCSD</i> <ul style="list-style-type: none">• Project: <i>Discovery and development of Type VI-D CRISPR effectors for transcriptome engineering applications</i>, proposed under Patrick Hsu	June 2019
Provost Honors <i>UCSD</i>	quarterly

PROFESSIONAL ACTIVITIES

Undergraduate Bioinformatics Club Member <i>UCSD</i> <ul style="list-style-type: none">• Collaborated with Illumina to develop digital resources for high school students interested in bioinformatics• Helped organize the 2018 Faculty & Industry Bioinformatics Symposium• Volunteered at the SD Science & Engineering Festival to teach the community about DNA sequencing technology	Nov. 2017 – June 2021
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SKILLS

Laboratory: Cell/tissue culture, molecular cloning, CRISPR screens, optical microscopy
Computational: Python, bash, web development, point clouds
Organizational: Git, L^AT_EX, Linux/Unix systems