

DANIEL ZHAO

@ danielzhao@college.harvard.edu dxczhao.github.io 818-658-6797 dxczhao

EXPERIENCE

Research Intern

Jet Propulsion Laboratory, Instrument Software and Science Data Systems

June 2021 – August 2021 La Cañada Flintridge, CA

- Designing convolutional neural networks for fast segmentation of high resolution images of Mars surfaces.

Research Assistant

California Institute of Technology, Yuk Yung Planetary Sciences Lab

June 2019 – Sept 2020 Pasadena, CA

- Discovered potential planet-mass stellar-metallicity relationship using data from Kepler Space Telescope and Transiting Exoplanet Survey Satellite.
- Developed algorithm to compare mineral-ligand structural similarities in the context of origin of life.

Research Intern

University of Southern California, Lin Chen Biomolecular Sciences Lab

May 2018 – Ongoing Los Angeles, CA

- Built machine learning models in Python predicting the regulatory interaction of gene clusters.
- Performed cluster analysis of key structural proteins and their functions.

PUBLICATIONS

Journal Articles

- Zhao, D., Bartlett, S., & Yung, Y. (2020a). Quantifying mineral-ligand structural similarities: Bridging the geological world of minerals with the biological world of enzymes. *Life*, 10, 338.
- Jiang, J., Zhao, D., Ji, X., Xie, B., & Fahy, K. (2021). Revisiting the planet mass and stellar metallicity relation for low-mass exoplanets orbiting gkm class stars. *Universe*, 7, 88.
- Chen, B., Kou, Y., Zhao, D., Wu, F., Liu, S., Chia, A., & Wang, L. (2020). Calculation on stopping time and return period. *Natural Hazards*, 101, 537–550.
- Chen, B., Kou, Y., Wang, Y., Zhao, D., Liu, S., Liu, G., ... Han, X. (2021). Analysis of storm surge characteristics based on stochastic process. *AIMS Mathematics*, 6, 1177–1190.
- Fan, S., Zhao, D., Liang, M.-C., Shemansky, D., & Yung, Y. (2021). Hydrocarbon and nitrile species in titan's upper atmosphere from cassini/uvis stellar occultation observations. *Earth and Space Science Open Archive*, Under Review.

Conferences & Presentations

- Zhao, D., & Kou, Y. (2020). Analyzing genomic features with predictive chromatin interaction models: A comprehensive evaluation. *IEEE conference on bioinformatics and computational biology 2020*.
- Zhao, D., Bartlett, S., & Yung, Y. (2020b). Quantifying mineral-ligand structural similarities. *American geophysical union fall meeting 2020*.

SKILLS

PythonC++JavaRGitAWS/GCPTensorflowLinux

Machine LearningAlgorithmsStatistical AnalysisResearchProblem Solving

EDUCATION

A.B. Mathematics

Harvard College

Sept 2020 – Expected May 2024

GPA: 3.95

Core Coursework: Statistical Inference (A), Algebra & Group Theory (A), Topology & Analysis (A)

Diploma

La Canada High School

Sept 2016 – May 2020

GPA: 4.66 (weighted), 3.98 (un-weighted)

ACT: 36/36 | PSAT: 1510/1520

HONORS

Qualifier

USA Junior Math Olympiad

April 2018

Five-time Qualifier

American Invitational Math Exam

March 2016 – March 2020

INTERESTS

Chess TheorySoccerTrack & FieldCelloClassic RockPoker Strategy