

# DANIEL ZHAO

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## EDUCATION

### Harvard College

Planned Mathematics Concentration | GPA: 3.89

Core Coursework: Math 55a (A), Math 55b, Stat 111

Expected May 2024

### La Canada High School

GPA: 4.66 (weighted), 3.98 (unweighted) | ACT: 36/36 | PSAT: 1510/1520

May 2020

## WORK HISTORY

### University of Southern California, Lin Chen Biomolecular Sciences Lab

#### Research Intern

May 2018 – present

Los Angeles, CA

- Built machine learning models predicting the regulatory interaction of gene clusters and structural proteins.
- Analyzed interpretability of machine learning techniques such as neural nets in the context of computational biology.
- Outperformed existing studies published in *Nature Genetics* across all accuracy metrics.

### California Institute of Technology, Yuk Yung Planetary Sciences Lab

#### Research Assistant

June 2019 - September 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.
- Modeled the atmospheric and terrestrial geometry of Titan using JPL's SPICE tool and CASSINI UVIS data.

### Nexpoints, LLC

#### Co-founder/CTO

June 2018 - present

Startup combining physician-led experience with machine learning to improve patient outcomes

- Addresses problem that 70% of doctor visits are unnecessary by developing mobile app that provides a preliminary health check based on physician-informed medical insights tailored to the patient's symptoms.
- Developed app with Javascript libraries SurveyJS and React; available at [nexpoints.com](https://nexpoints.com).

## HONORS

### USA Junior Math Olympiad (USAJMO)

#### Qualifier

April 2018

Invitation-only competition administered to the top 250 student scorers in American Mathematics Contest

- 5-time consecutive American Invitational Math Examination qualifier.

## PUBLICATIONS & PRESENTATIONS

- **D. Zhao**, S. Bartlett, Y. Yung. "Quantifying Mineral-ligand Structural Similarities: Bridging the Geological World of Minerals with the Biological World of Enzymes," published by *Life*.
- **D. Zhao** and Y. Kou. "Analyzing Genomic Features with Predictive Chromatin Interaction Models: a Comprehensive Evaluation," accepted and presented at *IEEE Conference on Bioinformatics and Computational Biology 2020*.
- B. Chen, Y. Kou, **D. Zhao** et. al. "Calculation on Stopping Time and Return Period," published by *Natural Hazards*.
- **D. Zhao**, S. Bartlett, Y. Yung. "Quantifying Mineral-ligand Structural Similarities," presented at *American Geophysical Union Fall Meeting 2020*.
- B. Chen, Y. Kou, Y. Wang, **D. Zhao** et. al. "Analysis of storm surge characteristics based on stochastic process," published by *AIMS Mathematics*.
- J. H. Jiang, **D. Zhao**, X. Ji, B. Xie, K. Fahy. "Revisiting the Planet Mass and Stellar Metallicity Relation for Low-Mass Exoplanets Orbiting GKM Class Stars," submitted to **Monthly Notices of the Royal Astronomical Society**.
- S. Fan, **D. Zhao**, et. al. "Hydrocarbon and nitrile species in Titan's upper atmosphere from Cassini/UVIS stellar occultation observations" submitted to *Earth and Space Science Open Archive*.
- B. Chen, Y. Kou, Y. Wang, F. Wu, **D. Zhao** et. al. "Stochastic Process in Storm Surge Analysis," submitted to *Ocean Science Journal*.

## SKILLS

### Computer Languages

Python, Java, C/C++

### Interests

rock and roll, chess strategy, soccer, track & field, cello, and cooking

### Tools

git, tensorflow, Linux, AWS/GCP, JPL SPICE