DANIEL ZHAO

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EDUCATION

Harvard College *Expected May 2024*
Planned Mathematics Concentration | GPA: 3.89
Core Coursework: Math 55a (A), Math 55b (Spring), Stat 111 (Spring)

La Canada High School *May 2020*
GPA: 4.66 (weighted), 3.98 (unweighted) | ACT: 36/36 | PSAT: 1510/1520

WORK HISTORY

University of Southern California, Lin Chen Biomolecular Sciences Lab May 2018 – present
Research Intern *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 June 2019 - September 2020
Research Assistant *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 June 2018 - present
Co-founder/CTO
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.

HONORS

USA Junior Math Olympiad (USAJMO) April 2018
Qualifier
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