

Zachary Ian Espinosa

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EDUCATION

University of Washington , Seattle, WA PhD, Atmospheric Science Advanced Data Science Option	Expected Jun 2027
Stanford University , Stanford, CA M.S. Applied and Engineering Physics , Schools of Arts and Science Concentration: Fluid Dynamics	Jun 2021
Stanford University , Stanford, CA B.S. Computer Science , School of Engineering Concentration: Artificial Intelligence	Sep 2020

FELLOWSHIPS & HONORS

DOE CGFS , Department of Energy Computer Science Graduate Fellow	Apr 2022
GO-MAP Fellow , Graduate Opportunities and Minority Achievement Program	Sep 2021
ARCS Foundation Scholar , Achievement Rewards for College Scientists	Sep 2021
GEM Graduate Fellow , The GEM National Consortium	Jan 2020

PROFESSIONAL EXPERIENCE

PhD Intern <i>Richland, WA</i> Pacific Northwest National Laboratory	Jun 2021 – Sep 2021
<ul style="list-style-type: none">Studied the main drivers of the seasonal delay of rainfall in the Amazon basin.	
Graduate Research Assistant <i>Stanford, CA</i> Stanford Earth Systems Science	Sep 2019 – Sep 2021
<ul style="list-style-type: none">Used machine learning to develop a data-driven single column atmospheric gravity wave parameterization that emulates a physics-based parameterization in a model of an idealized moist atmosphere (MiMA) as part of the Sheshadri group.Preparing to submit a manuscript to <i>Geophysical Research Letters</i>.	
Machine Learning Engineering Intern <i>Redwood City, CA</i> UnifyID	Apr 2020 – Jun 2020
<ul style="list-style-type: none">Worked on an internal machine learning pipeline used for experiments and performance studies. Developed enhanced performance metrics, introduced regression testing, and studied the performance impact of using time-weighted classifications.	
Quantum Engineering Intern <i>Palo Alto, CA</i> AT&T Foundry	Jun 2019 – Sep 2019
<ul style="list-style-type: none">Built an open-source python framework for quantum networking (QN) simulations. Publishing a white paper to arXiv.Invited to speak at APS March Meeting about implementation of canonical QN protocol: teleportation, superdense coding, etc.	
Software Engineering Intern <i>Mountain View, CA</i> Smartcar, Inc.	Jan 2019 – Jun 2019
<ul style="list-style-type: none">Designed, built, and launched two public and one private endpoints for Smartcar API and authored resulting documentation.Maintained python, node.js, and java SDKs. Attended USC hackathon as a mentor/sponsor. Contributed to OAuth2 pipeline.	
Mobile Software Engineering Intern <i>San Francisco, CA</i> OXO, Inc.	Apr 2018 – Sep 2018
<ul style="list-style-type: none">Built first iteration MVP app for iOS and Android using React Native, Firebase, Heroku, and AWS RDS.	
Web and Networking Engineering Intern <i>Ashton, ID</i> Henry's Fork Foundation	Jun 2017 – Sep 2017
<ul style="list-style-type: none">Designed and built a 10 point data collection network using CR300 data loggers by Campbell Scientific to collect and transfer YSI sondes data via FTP to a server running KorEXO software. The published, real time website can be found here.	
Summer Internship in Science & Technology <i>Batavia, IL</i> Fermi National Accelerator Laboratory	Jun 2016 – Sep 2016
<ul style="list-style-type: none">Assembled part of a medium-energy horn system used to convert protons to neutrinos for the NuMI experiments.	
Student Researcher <i>Lemont, IL</i> Argonne National Laboratory	Sep 2014 – May 2015

LEADERSHIP & EXTRACURRICULA

Teaching Assistant – Emergency Medical Responder (EMR) <i>Stanford, CA</i>	Sep 2020 – Current
<ul style="list-style-type: none">Teaching didactic and practical training for students in the EMR program.	
Phoenix Scholars Member <i>Stanford, CA</i>	Nov 2015 – Nov 2016
<ul style="list-style-type: none">Mentored low income, first generation, and/or minority high school students. Organized annual 200+ attendee meet and greet.	
Varsity Track & Field Division I Athlete <i>Stanford, CA</i>	Sep 2015 – Sep 2016
<ul style="list-style-type: none">Nationally ranked pre-collegiate 400m sprinter, 3A IHSA All-State Finalist, AAU Junior Olympics All-American.	
Stanford Overseas Studies Program Participant <i>Santiago, Chile</i>	Sep 2018 – Dec 2018
Stanford Overseas Seminar Program Participant <i>Krakow, Poland</i>	Sep 2017

PRESENTATIONS

Speaker AGU Fall Meeting Machine Learning Emulation of Parameterized Gravity Wave Momentum	Dec 2021
Speaker EGU General Assembly Machine Learning Emulation of Parameterized Gravity Wave Momentum	Apr 2021
Speaker AGU Fall meeting A Data-Driven, Single column Gravity Wave Parameterization in an Idealized Model	Dec 2020
Speaker MSCAR A Data-Driven, Single column Gravity Wave Parameterization in an Idealized Model	Sep 2020

Speaker CalGFD A Data-Driven, Single column Gravity Wave Parameterization in an Idealized Model	Aug 2020
Poster APS March Meeting (Canceled) netQuil: A playground for quantum networking simulations	Mar 2020
Poster Stanford Deep Learning Poster Session Distracted Driver Detection	Jun 2018
Poster Stanford Artificial Intelligence Post Session Tracking Schistosomiasis with Computer Vision	Mar 2018

ADDITIONAL INFORMATION

Tooling: Julia, Python, Tensorflow, PyTorch, Fortran, C++, C, Node.js, Express, Javascript, React Native, AWS, Postgres, SQL

Computer Experience: Computer vision, Deep Learning, Reinforcement Learning, API, DB and server development

Certifications: PCA Climbing Instructor, EMT-B, Open Water Scuba Diver, Black Belt Shotokan Karate