Zachary Espinosa

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EDUCATION

University of Washington, Seattle, WA — Expected Jun 2026
PhD, Atmospheric Sciences | Advanced Data Science Option

Stanford University, Stanford, CA — Jun 2021
M.S. Applied and Engineering Physics, Schools of Arts and Science

Stanford University, Stanford, CA — Sep 2020
B.S. Computer Science, School of Engineering | Concentration: Artificial Intelligence

HONORS & FELLOWSHIPS

Department of Energy Computational Science Graduate Fellowship (DOE CSGF) — Apr 2022

Graduate Student Equity & Excellence Fellowship (GSEE Fellow) — Sep 2021

Achievement Rewards for College Scientists Foundation Scholar (ARCS Scholar) — Sep 2021

The GEM National Consortium Graduate Fellow (GEM Graduate Fellow) — Jan 2020

PROFESSIONAL EXPERIENCE

PhD Intern | *Richland, WA* | **Pacific Northwest National Laboratory** — June 2021 – Sep 2021

• Studied the impact of climate change on annual precipitation in the Amazon Rainforest

Graduate Research Assistant | *Stanford, CA* | **Stanford Earth Systems Science** — Sep 2019 – Sep 2021

• Developed a machine learning gravity wave parameterization in Sheshadri Group

• Integrated data-driven parameterization in a global climate model

• Publication in Geophysical Research Letters - Espinosa, Zachary I., et al (2022)

Machine Learning Engineering Intern | *Redwood City, CA* | **UnifyID** — Apr 2020 – Jun 2020

• Developed in-house machine learning pipeline for research & development. Introduced regression testing

Quantum Engineering Intern | *Palo Alto, CA* | **AT&T Foundry** — Jun 2019 – Sep 2019

• Built an open-source python framework for quantum networking (QN) simulations called netQuil which supported the implementation of canonical QN protocol (e.g. teleportation, superdense coding)

Software Engineering Intern | *Mountain View, CA* **| Smartcar, Inc.** — Jan 2019 – Jun 2019

- Designed, built, and launched electric vehicle endpoints for Smartcar API
- Maintained python, node.js, and java SDKs. Contributed to OAuth2 pipeline.

Mobile Software Engineering Intern | *San Francisco, CA* | **OXO, Inc.** — Apr 2018 – Sep 2018

- Built first iteration MVP mobile app for iOS and Android using React Native, Firebase, Heroku, and AWS RDS.

Web and Networking Engineering Intern | *Ashton, ID* | **Henry's Fork Foundation** — Jun 2017 – Sep 2017

• Designed and built a data collection network for monitoring the Yellowstone watershed.

Summer Internship in Science & Technology | *Batavia, IL* | **Fermi National Accelerator Laboratory** — Jun 2016 – Sep 2016

• Assembled part of an energy system used to convert protons to neutrinos for NuMI particle physics experiments.

LEADERSHIP & EXTRACURRICULA

Graduate President of UW American Meteorological Society Chapter | *Seattle, WA* — Sep 2021 – Current

Phoenix Scholars Board Member | *Stanford, CA* — Nov 2015 – Nov 2016

- Mentored low income, first generation, and/or minority high school students

Varsity Track & Field Division I Athlete | *Stanford, CA* — Sep 2015 – Sep 2016

- Nationally ranked pre-collegiate 400m sprinter, 3A IHSA All-State Finalist, AAU Junior Olympics All-American.

Stanford Overseas Studies Program Participant | *Santiago, Chile* — Sep 2018 – Dec 2018

Stanford Overseas Seminar Program Participant / *Krakow, Poland* — 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

Poster **| AGU Fall meeting |** A Data-Drive, Single column Gravity Wave Parameterization in an Idealized Model — Dec 2020

Speaker **| MSCAR |** A Data-Drive, Single column Gravity Wave Parameterization in an Idealized Model — Sep 2020

Speaker **| CalGFD |** A Data-Drive, 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: Python, Tensorflow, PyTorch, Fortran, C, C++, Julia, Node.js, Express, Javascript, React Native, AWS, Postgres, SQL

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