Zachary Ian Espinosa

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EDUCATION

PhD, Atmospheric Science | University of Washington | Ice and Climate Group (Advisor: Cecilia Bitz) — Expected Jun 2027
M.S. Applied and Engineering Physics | Stanford University | Concentration: Fluid Dynamics — Jun 2021
B.S. Computer Science, School of Engineering | Stanford University | Concentration: Artificial Intelligence — Sep 2020

FELLOWSHIPS & HONORS

DOE CSGF, 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

PUBLICATIONS & PROJECTS

Characteristics and Drivers of Arctic Sea Ice Extent Variability in a Warmer Climate | Current Project

- Contributors: Zachary I. Espinosa, Cecilia Bitz

Machine Learning Gravity Wave Parameterization Generalizes to Capture the QBO and Response to Increased CO2

- Published in Geophysical Research Letters (https://doi.org/10.1029/2022GL098174)

Drivers of the Seasonal Delay of Rainfall in the Amazon Rainforest

- Authors: Zachary I. Espinosa, Lai-yung Ruby Leung, Fengfei Song

NetQuil: A Quantum Playground for Distributed Quantum Computing Simulations | Publicly Accessible

- Contributors: Zachary I. Espinosa, Matthew Radzihovsky, Yewon Gim

Henry's Fork Foundation Water Quality Monitoring Site | Publicly Accessible

- Contributors: Melissa Muradian, Zachary I. Espinosa, and Justin Appleby

PRESENTATIONS

Speaker | **AGU Fall Meeting** | A Machine Learning Parameterization of Gravity Wave Momentum Fluxes — 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

PROFESSIONAL EXPERIENCE

PhD Intern | *Richland, WA* | **Pacific Northwest National Laboratory** — Jun 2021 – Sep 2021
Graduate Research Assistant | *Stanford, CA* | **Stanford Earth Systems Science** — Sep 2019 – Sep 2021
Machine Learning Engineering Intern | *Redwood City, CA* | **UnifyID** — Apr 2020 – Jun 2020
Quantum Engineering Intern | *Palo Alto, CA* | **AT&T Foundry** — Jun 2019 – Sep 2019
Software Engineering Intern | *Mountain View, CA* | **Smartcar, Inc.** — Jan 2019 – Jun 2019
Mobile Software Engineering Intern | *San Francisco, CA* | **OXO, Inc.** — Apr 2018 – Sep 2018
Web and Networking Engineering Intern | *Ashton, ID* | **Henry's Fork Foundation** — Jun 2017 – Sep 2017
Summer Internship in Science & Technology | *Batavia, IL* | **Fermi National Accelerator Laboratory** — Jun 2016 – Sep 2016
Student Researcher | *Lemont, IL* | **Argonne National Laboratory** — Sep 2014 – May 2015

LEADERSHIP & EXTRACURRICULA

Unlearning Racism in Geoscience | Stanford Earth Systems Science | Team Member — Jan 2021 – Apr 2021
Teaching Assistant – Emergency Medical Responder (EMR) | Stanford, CA — Sep 2020 – Jan 2021
Phoenix Scholars Member | Stanford, CA — Nov 2015 – Nov 2016

- Mentored low income, first generation, and/or minority high school students. Organized annual 200+ attendee meet and greet.