

Oscar Hernandez

📍 Honolulu, Hawaii, United States ✉ oih@hawaii.edu ☎ +1 (646) 961-3715 📧 in/oihernandez 🌐 www2.hawaii.edu/~oih/resume

SUMMARY

Graduate student of computer science with current coursework on linear algebra and the security science of language & machine learning. Seeking an opportunity related to my interests in embedded systems, security, and systems software development engineering.

EDUCATION

Master of Science in Computer Science

University of Hawai'i at Mānoa, College of Natural Sciences • Honolulu, HI • May 2025 • 4.0 GPA

- Awarded 2 years of funding from the U. S. National Science Foundation (N. S. F.) CyberCorps: Scholarship for Service.
- Awarded a scholarship from the Univ. of Hawai'i at Mānoa, Shidler College of Business.

Master of Science in Mathematics

University of Alaska Fairbanks, College of Natural Science and Mathematics • Fairbanks, AK • 2022 • 3.22 GPA

Bachelor of Arts in Computer Science and Mathematics

Bard College at Simon's Rock • Great Barrington, MA • 2017 • 3.21 GPA

EXPERIENCE

Student Trainee

United States Naval Research Laboratory

June 2024 - August 2024, Washington, DC

- Investigated the security of protocol dialects in the Systems Directorate.
- Published findings from my research at a venue on computer & communications security.

Intern, Spring 2024 USINDOPACOM-UHM Intelligence Mentoring Internship Program

United States Indo-Pacific Command

January 2024 - May 2024, Aiea, HI

- Investigated the potential applications of information hiding technology for intelligence operations.
- Developed a state-of-the-art transformer neural network model for text steganalysis.

Cyber Security Intern, Naval Information Warfare Centers (NIWC) CyberSecurity Service Provider Internship

Adapt Forward

August 2023 - December 2023, Honolulu, HI

- Won Best Poster Award from the NIWC CSSP for my project on a routing algorithm for wireless networks based on physical optics.

Robotic Engineer Intern

MOLG

June 2023 - August 2023, Chantilly, VA

- Enabled robot to grab servers from industry-standard racks by building software and a hardware tool that attaches at the end of the arm.

Research Intern

U. A. F., Geophysical Institute

May 2022 - May 2023, Fairbanks, AK

- Designed a self-supervised machine learning model for meteor parameter estimation and trained the neural network in Python with PyTorch.

Graduate Teaching Assistant

U. A. F., College of Natural Science & Mathematics

August 2020 - May 2022, Fairbanks, AK

- Taught weekly discussion sections for the first-year Calculus sequence, graded weekly assignments, and staffed the drop-in tutoring lab.

Engineering Intern

The Launch Company

May 2021 - August 2021, Anchorage, AK

- Designed instrumentation & control systems for the world's first prototype of a mobile, multi-user rocket launch site.

Management Consultant

Independent Freelance Contracting

January 2018 - July 2020, Los Angeles, CA

- Executed 15+ contracts from marketing to sales and product development.

Co-Founder and Hardware Developer

ARKS

January 2019 - March 2020, Ontario, CA

- Led customer discovery, product, and mechatronics engineering for our Autonomous Mobile Robot prototype.
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SKILLS

Research: Security, Computer Science, Machine Learning, Data Science, Mathematical Physics, Science and Engineering

INVOLVEMENT

Team Member in National Collegiate Cyber Defense Competition (C. C. D. C.)

U. H. Mānoa, College of Natural Sciences • Association for Computing Machinery • September 2023 – Present

• Training for the 2025 At Large Regional C. C. D. C. Qualifier and previously represented the University of Hawai'i in the 2024 A. L. C. C. D. C.

Student Affiliate

East-West Center • Education Program • August 2023 – Present

• Attended The Exchange and reviewed abstracts for the International Graduate Student Conference.

Cybersecurity Curriculum Team Lead and Summer Mentor

Science Mentorship Institute • Computer Science Mentorship Program • October 2023 – August 2024

• Mentored student researchers in the sci-MI C. S. M. P. and developed cybersecurity content: lectures, discussions, and interactive labs.

Reviewer

Academia • September 2020 – February 2024

• Served as one-time reviewer for Journal of Information Processing; Thai Journal of Mathematics; Designs, Codes, and Cryptography.

RESEARCH

Reasoning About Security of Protocol Dialects

FEAST 2024 (6th Workshop on Forming an Ecosystem Around Software Transformation) • 2024

• <https://feastworkshop.github.io/2024/program.html>

Physics-Informed Machine Learning for Routing (Best Poster Award from the Naval Information Warfare Centers)

U. H. Mānoa, College of Natural Sciences (Information & Computer Sciences Department Project Day) • 2023

• <https://www2.hawaii.edu/~oih/research/cyber.html>

An Invitation to Gauge Theory

U. A. F., College of Natural Science & Mathematics (M. S. Thesis accepted by U. A. F., Graduate School) • 2022

• <https://sites.google.com/alaska.edu/oihernandez/thesis>

Turning Around and Around: Motion Planning through Thick and Thin Turnstiles

CCCG 2021 (33rd Canadian Conference on Computational Geometry), Pages 377–387 • 2021

• <https://projects.cs.dal.ca/cccg2021/wordpress/wp-content/uploads/2021/08/CCCG2021.pdf>

Zero Shot Sentiment Analysis on Tweets in Any Language

SoCalNLP 2019 (Southern California Natural Language Processing Symposium), Poster Session #1 • 2019

• <https://socialnlp.github.io/symp19/index.html>

Towards Compositional Transfer Learning (1153–18–420)

AMS Meeting #1153 (Fall Western Sectional Meeting of the American Mathematical Society), Contributed Paper Session #1 • 2019

• http://www.ams.org/amsmtgs/2266_abstracts/1153-18-420.pdf

Constructing de Bruijn Sequences with Co-Lexicographic Order: The k -ary Grandmama Sequence

European Journal of Combinatorics, Volume 72, Pages 1–11 • 2018

• <https://www.sciencedirect.com/science/article/pii/S0195669818300696>

Constructing Maximum-Rotating de Bruijn Sequences Using their Necklace Trees (B. A. Thesis awarded Honors)

Simon's Rock Division of Science, Mathematics, and Computing (B. A. Senior Thesis) • 2017

• <https://digitalcommons.bard.edu/20242024sr-theses/1120>

Dynamics of Biomimetic Electronic Artificial Neural Networks

ICAND 2016 (4th International Conference on Applications in Nonlinear Dynamics), LNNS Volume 6, Pages 195–207 • 2016

• https://link.springer.com/chapter/10.1007/978-3-319-52621-8_18

The Grandmama de Bruijn Sequence for Binary Strings

LATIN 2016 (12th Latin American Theoretical Informatics Symposium), LNTCS Volume 9644, Pages 347–361 • 2016

• https://link.springer.com/chapter/10.1007/978-3-662-49529-2_26