

# Jonathan Macias

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 [Jonathan-Macias.com](https://Jonathan-Macias.com)

## EDUCATION

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### Bachelor of Science

Computer Science (Major) | Statistics + Math (Minors) | Summa Cum Laude

September 2018 - June 2022  
Oregon State University | Corvallis OR

## TECHNICAL SKILLS

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**Languages & Tools:** Python | C++ | C | SQL | Shell scripting | GitHub | Docker | Kubernetes | Apache Spark/Kafka | Ansible | AWS | Jenkins | Bullseye Coverage | OpenCV | OpenGL | OpenMP | Excel

**Data Science & Machine Learning Software:** Pandas | TensorFlow | Keras | PyTorch | Hugging Face | MATLAB | SciKit-Learn | Matplotlib | NumPy | Power BI | R | Jupyter

**Software Engineering Skills:** Deep Learning | Reinforcement Learning | Data Science | Multithreading | Cloud Computing | Operating Systems | Advanced Data Structures | Data Visualizations | Computer Architecture Design | DBMS | Agile + Waterfall experience | App development | Blockchain development | Test-driven development

## WORK EXPERIENCE

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### Deep Reinforcement Learning Researcher

January 2023 – June 2023

Oregon State University | Intel

- Led research with Intel Labs for SLA adherence during resource contention of workload-collocated deployments
- Implemented a novel Deep RL infrastructure on industry-wide collocations against the current state of the art
- Assisted in publishing of research findings, with reputable publications for the field of ML and cloud computing

### Graduate Teaching Associate

January 2023 – June 2023

Oregon State University

- Served as an academic resource, recitation instructor, and technician for two of Oregon State University's engineering courses, including the Operating systems II Ecampus course
- Educated 100+ engineering students on approaches for defining design problems, assessing stakeholder needs, concept generation, prototyping, and experimental design
- Fashioned and maintained the course-critical operating system exokernel for concurrent processes, memory management, job scheduling, multiprocessing, file systems, and other principles of operating systems

### Software Engineer

June 2022 - December 2022

Garmin AT

- Supported the embedded systems graphical interface of aviation mapping software using OpenGL, shaders, interpolation, and many graphical collision techniques
- Developed product-imperative software with longevity and in firm adherence to DO-178B standards for FAA aviation equipment verification
- Instituted new graphical mapping capabilities as part of aviation products that are in cockpits of both commercial and recreational use

### DevOps Engineer

April 2021 - September 2021

Cambia Health Solutions

- Implemented enterprise-grade Apache Kafka streaming to cloud-native systems as an event-processing infrastructure
- Managed and maintained 25+ nationwide AWS cloud instances using Ansible for data wrangling and automation
- Sole developer of the company's internal onboarding webpage for the event-processing service

## PROJECTS

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### Speech-to-Speech Conversational AI

Python | Hugging Face | PyTorch

Summer 2023

- Leveraging LLMs, the Hugging face framework, speaker embedding dataset for sequential inference
- Combined automatic speech recognition, conversational text, and text-to-speech GPTs for seamless voice assistance with context history knowledge

### ASA DataFest Oregon Chapter

Python | R | Scikit-Learn

Spring 2022

- Characterize and displayed patterns of play from data collected by researchers at the Yale School of Medicine
- Analyzed logs of ~200 test participants to provide real-life behavior insights on correlation between game behavior and efficacy in resisting drugs
- Awarded first place for the finest statistical analysis and insights after analyzing the relevance of more than 60 features using regression machine learning models and significance analysis

### Smart Job Printing Advisor System (HP Collaboration)

September 2021- June 2022

C++ | Docker | OpenCV | Python | JavaScript

- Sole developer of PDF computer vision analysis for print job predictions and correctional setting mappings
- Provided full-stack development of customer webpage, backend ruleset logic, docker containerization, and internal image analysis

### Neural Network for Digit Identification

Summer 2021

Python | NumPy

- Successfully created a neural network without utilizing any propagation or machine learning python packages
- Manually implemented back propagation, cross entropy, k-fold validation, and activation functions
- Submitted to digit identification Kaggle competition with 93% public accuracy, and 94% private accuracy

### Real Time Credit Card Detector

Spring 2021

Scala | Kafka | Spark | node.js | Shell Scripting

- Designed a full stack application for nearly-instant credit card information streaming and fraud detection
- Incorporated machine learning classification methods to identify instances of fraud
- Awarded second place at the BeaverHacks Spring 2021 competition for the credit card processing solution

### OSU Accessibility Webpage

Summer 2020

JavaScript | React | Nginx | Docker | AWS Ec2 + Autoscaling + LoadBalancer | CloudFront

- Designed an Oregon State University themed webpage for onboarding student resources
- Embedded a google maps API to help students get situated with university campus life
- Awarded first place at BeaverHacks Summer 2020 competition for best accessibility-tailored application

## NOTABLE AWARDS AND ACHIEVEMENTS

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Breunsbach EECS Scholarship

2022

*Oregon State University: Merit Scholarship awarded for superior academic achievement*

Richard Earnhardt EECS Endowment

2022

*Oregon State University: Merit Scholarship awarded for superior academic achievement*

President of Chi Alpha Campus Ministries student organization

2021 - 2022

Min Kao Garmin Scholarship Program

2019 - 2022

*Garmin AT: Merit Scholarship awarded for superior academic achievement*

Finley Academic Excellence Scholarship

2018 - 2022

*Oregon State University: Merit Scholarship awarded for superior academic achievement*

Von Borstel Family Legacy

2019 - 2021

*University Honors College: Merit Scholarship awarded for superior academic achievement*