Jonathan Macias

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EDUCATION

Bachelor of Science September 2018 - June 2022
Computer Science (Major) | Statistics + Math (Minors) | Summa Cum Laude Oregon State University

TECHNICAL SKILLS

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| LangChain | 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

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 Engineering Intern 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 Engineering Intern 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

RECENT PROJECTS

Therapeutic Client Response Generator

Python | LangChain | Streamlit Summer 2023

- Generates instant, personalized coping strategies and positive affirmations, fostering self-care, reducing stress, and enhancing users' mental and emotional wellness.
- Utilized LangChain query execution, prompt templates, and FAISS knowledge embedding for an advanced conversational model
- Integrated expert domain knowledge into LLM, bypassing need for LLM fine-tuning which compromises accuracy

Offline 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 member logs to provide life behavior insights between game behaviors 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

Breunsbach EECS | Richard Earnhardt EECS Endowment | Finley Academic Excellence 2018 - 2022

Merited Oregon State University Scholarships awarded for superior academic achievement

Min Kao Garmin Scholarship Program 2019 - 2022

Merited Garmin AT Scholarship awarded for superior academic achievement

President of Chi Alpha Campus Ministries student organization 2021 - 2022

Von Borstel Family Legacy 2019 - 2021

Merited University Honors College Scholarship awarded for superior academic achievement