

MATEO ESTRADA JORGE

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526 Golden Ave
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EDUCATION

MS

California Polytechnic State University Pomona, Computer Science June 2024

Post-Bacc

Oregon State University, Computer Science March 2022
Advisor: Lizbeth Marquez

BS

Oregon State University, Applied Physics June 2019
Thesis: "The return of the Cox & Strack Method for
Heterojunction solar cells"
Advisor: Dr. Ethan Minot

COMPUTER SKILLS STACK

Programming Languages/Scripting: CSS3, HTML5, JavaScript, C, C++, Python 2 & 3, Rust, R, and Machine Assembly Language (MASM), PBASIC

Applications: Trello, GitHub, Git, RStudio, PyCharm, Visual Studio Code, CLI, Sublime, XCode, Anaconda, NodeJS, Django, Flask, Vue.js, AWS S3 Buckets, Google Domains

Platforms: Windows, MacOS, Kali Linux, Unix Systems

WORK EXPERIENCE

National Aeronautics and Space Administration, Aug. 2020 to March 2021
OSTEM Intern, EPSCoR Program

- Created a front-end system at a designer level.
- I built nine pages of the new website for the Established Program to Stimulate Competitive Research Program (EPSCoR) at NASA.
- Compiled crucial information on all 28 NASA jurisdictions in a database.
- I built 60 graphs using database information on all 28 NASA jurisdictions and successfully incorporated the graphs in my front-end designs.
- I presented my website design progress reports to the NASA EPSCoR team at weekly meetings.
- I designed and built the NASA EPSCoR poster for the Better Together Conference hosted at the Kennedy Space Center October 2020.

- Finally, I showcased my final design to the entire Communications and Public Engagement team in my final presentation and my design went online in March 2021.

All in One Studio, Software Engineer OR White City June 2020 – July 2021

- Produced software related documentation and synthesized requirements for a long-lasting front-end software system.
- Designed a software system at the architectural level and at lower levels and used the Agile methodology during development phases.
- Presented designs to stakeholders and incorporated
- Described several methods of estimating the cost of development, deployment, and maintenance while providing a detailed schedule of development.
- Skill Stack used:
 - Designed the front-end of a business web application using JavaScript, CSS3, HTML5, and Bootstrap.
 - Built the server for the landing page using NodeJS.
 - Deployed the web application on Heroku.
 - Continually using AWS S3 buckets for static content storage.
 - Continually update the web application front-end

College Dreams, Industrial Engineer Intern OR White City June 2015 to Aug 2015

Rob Fields Industrial Inc

- My engineering project was to design, build, and deliver a reusable, safety-approved, industrial grade cart for a \$250,000 laboratory temperature chamber.
- During my project, I also volunteered to work machining tools that his clients had pre-ordered. I amassed more than 150 hours machining industrial parts using machining equipment such as CNC machine, drill press, bandsaws, and lathes.
- For example, I got experience doing design work, managing deadlines with clients, and delivering an important product for a client to be able to continue using an expensive and essential lab equipment in production.

RESEARCH EXPERIENCE

Hatfield Marine Science Center, Newport OR

2021 to 2021

Data Analyst REU intern

- I'm working with Dr. Leigh Torres and PhD student Dawn Barlow on studying the calling behavior of pygmy blue whales from the New Zealand South Taranaki Bight (STB).
- I'm using R and Python to prepare csv and text data for analysis, and acoustic software Raven to identify and collect viable sample data.
- We are also using machine learning algorithms to automatically process acoustic data in Raven.
- I will deliver my final research results in a presentation at the REU Symposium at OSU in August 2021.

Arizona State University, Tempe AZ

2018 to 2019

Electrical Engineering REU intern, Dr. Zachary Holman

- Tested a new method of measuring contact resistance in heterojunction solar cells designed by PI Zachary Holman.
- Built solar cell samples to test new method in a clean lab environment alongside PhD student Will Weigand.
- Used the results of the new method as Physics research thesis.

Astrophysics Research, OSU, Corvallis OR

2017

Advisor: Dr. Davide Lazzati

- Programmed a computational simulation of two black holes in circular orbit designed to test the orbit of a test particle subject to the two black hole gravities.
- All calculations were performed in the reference frame in which the two BHs are not moving using centrifugal and Coriolis forces simulated in Python 3.

TEACHING EXPERIENCE

Oregon State University, Corvallis OR

Jan 2021 to Current

Teaching Assistant, High School Equivalency Program

- Provided academic assistance with Algebra I, Statistics, and Geometry to a cohort of 20 adult students looking to get their GED.
- Hosted office hours three times a week for four hours for one-on-one sessions to provide feedback on homework assignments, pre-tests guidance, and help with quizzes.
- I led 50-minute lectures on algebra I when the instructor was unavailable.

Oregon State University, Corvallis OR

Jan 2017 to June 2019

Tutor, College Assistance Migrant Program

- Provided academic assistance with Differential and Integral Calculus to two cohorts of 30 freshman students.
- Hosted office hours three times a week for four hours for one-on-one sessions to provide feedback on homework assignments, pre-tests guidance, and assistance with quizzes.
- I gave 50-minute lectures on the differentiation to 5 students every other week.

RELEVANT SOFTWARE ENGINEERING COURSEWORK

Intro to Computer Science I, Oregon State University, September 2019

- Designed and implemented programs that require library functions, programmer defined functions, classes, objects, debug programming syntax and run-time errors.
- Described and applied basic software engineering design principles and software quality factors

Intro to Computer Science II, Oregon State University, January 2020

- Designed and implemented programs that require multiple classes, structures, hyperarchies of classes that use inheritance and polymorphism.
- Constructed and used basic linear structures: arrays, stacks, queues, and linked lists in programs and be able to describe instances appropriate for their use.
- Classified moderately complicated algorithms in complexity classes: $O(1)$, $O(\log n)$, $O(n)$, $O(n \log n)$, and $O(n^2)$.
- Developed test-data sets and testing plans for programming projects.
- Produced recursive algorithms and choose appropriately between iterative and recursive algorithms.

Machine Language and Assembly Language, Oregon State University, March 2020

- Simulated the internal representation of data and show how data is stored and accessed in memory.
- Explained the relationships between hardware architecture, its instruction set, and simulate microprograms
- Used the Instruction Execution Cycle and learn the relationships among high-level, assembly, and machine languages.
- Wrote well-modularized computer programs in an assembly language, implementing decision, repetition, and procedure structures.
- Simulated the system stack as it is used for procedure calls and parameter passing.

Web Development, Oregon State University, March 2020

- Designed and implemented web applications using JavaScript, NodeJS, MySQL, HTML5, CSS3 and deployment techniques.
- Described the architectural elements of effective web applications, as well as key threats to relevant architectural quality attributes.
- Demonstrated implementation of extensive custom functionality across multiple tiers.
- Evaluated which architectural strategies to apply and in what manner to address a given set of quality requirements like scalability, usability, and security.

Databases, Oregon State University, January 2021

- Described the difference between relational database and a flat file.
- Model a complex data set using ER or UML diagram and derived a relational schema from diagram.

- Created a relational database from a relational schema.
- Created multiple indices in a relational database and explained when and why such indices are appropriate.
- Formulated SQL statements for data manipulation.
- Formulated simple queries in relational algebra by using projection, selection, product, and join.
- Designed and implemented a web-based relational database system using one or more scripting languages (JavaScript) and an open source database development system (PostgreSQL, MariaDB).

Analysis of Algorithms, Oregon State University, January 2021

- Used O , Ω , Θ and simple recurrences to analyze the time complexity of iterative and recursive algorithms.
- Proved the correctness of algorithms.
- Implemented recursive, iterative, and heuristic algorithms.
- Proved that a problem is NP-complete using reductions.

Software Engineering I, Oregon State University, March 2021

- Synthesized requirements for a realistic software system and wrote a requirements specification document.
- Produced professional-quality software-related documents.
- Modeled system requirements using one or more semi-formal notations such as UML, dataflow diagrams, entity-relationship diagrams.
- Designed a software system at an architectural level and at lower levels, using the technique of Agile methods, and expressed these designs in design specification documents.
- Validated designs and adjusted the specifications as necessary.
- Described several methods of estimated the cost and developing schedule for a programming project.
- Participated effectively in a team environment.

Operating Systems, Oregon State University, March 2021

- Wrote software by applying appropriate system programming principles and techniques in C and Rust.
- Justified the need for a multi-programmed OS and explained the general structure of such systems.
- Selected system calls for appropriate uses.
- Compared and Contrasted the process and thread abstractions and selected an appropriate abstraction.
- Assessed and solved possible issues related to concurrent execution.
- Explained the file abstraction and system I/O.
- Compared and chose mechanisms for inter-process communication.

PRESENTATIONS AND INVITED LECTURES

Hatfield Marine Science Center, “*Impact of earthquakes on blue whale calling behavior using Non-Invasive Acoustics*,” Marine Biology REU Symposium, August 2021.

NASA, The new NASA EPSCoR Website, Communication and Public Engagement, December 2020.

Oregon State University, “*Contact resistance: the return of the Cox and Strack method for heterojunction solar cells*,” Physics Thesis Presentations Oregon State University, June 2019.

QESST, “*Contact Resistivity of a-Si based Contacts*,” Arizona State University Renewable Energy REU Poster Session, August 2018.

PROFESSIONAL TRAINING

National Aeronautics and Space Administration, Cybersecurity, June 2020
FY20 cybersecurity and sensitive unclassified information awareness course for new employees.

National Aeronautics and Space Administration, Telework, June 2020
Certification of completion of teleworking training.

LANGUAGES

Spanish: First Language: Advanced listener, Speaker, novice Reading and Writing

English: Second Language: Advanced Reading, Writing, Speaker and Listener

REFERENCES

Dr. Lester Morales, EPDC-Specialist
NASA PX-E
NASA EPSCoR
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Dr. Leigh Torres, Associate Professor
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