Aidan J Maldonado

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Education

- **University of California, Santa Cruz - GPA: 3.63** — **Sep 2022 - Jun. 2026**
  - Bachelor's of Science in Computer Science - *Declared & Pursuing*
  - Minor in Applied Mathematics- *Pursuing*
- **De Anza College - GPA: 4.00** — **Jun. 2023 - Jun. 2026**
- **Las Positas College - GPA: 4.00** — **Jun. 2023 - Jun. 2026**

Relevant Coursework (All on CV)

Machine Learning and Data Mining *(UCSC - CSE 142)* • Data Structures and Algorithms *(UCSC - CSE 101)* • Analysis of Algorithms (UCSC - CSE 102)
Principles of Computer Systems Design (UCSC - CSE 130) • Research Explorations *(UCSC - CMPM 15)* • Computer Systems and C Programming *(UCSC - CSE 13s)*
Classical and Bayesian Inference (UCSC - Stats 132) • Applied Discrete Mathematics (UCSC - CSE 16) • Linear Algebra *(UCSC - Math 21)*
Theory and Practice of Peer-Guided Learning for Tutors and Learning Assistants *(UCSC - Stev 96)* • Programming Abstractions: Python *(UCSC - CSE 30)*

Learning Support Services Tutor — Sep. 2023 - Present

- **LSS Large Group Tutor for Discrete Math** — **Sep. 2023 - Dec. 2023**
  - Facilitated and engaged large groups of 10-20 students through collaborative and individual activities each tutoring session. Provided individualized, equitable tutoring and conceptual help for my smaller 2-5-person sessions. Tailored critical, specialized lesson plans during these smaller sessions paired with constructive, student-centered feedback, ensuring each student excels in thorough class understanding and uplifting all who attend.
  - Prepared and hosted three one-hour weekly engaging sessions and three-hour long Midterm and Final review sessions, attracting up to 90 people.
  - Communicated punctually and concisely; effectively conveyed thoughts verbally, visually, and interactively to a diverse range of listeners while perceiving and catering to individual student needs.
  - Maintained an efficient and well-organized schedule by actively collaborating with my co-tutor to plan and host joint sessions, attending weekly meetings with my mentor and supervisors, and ensuring timely communication through Slack and email. Consistently outlining to incorporate feedback to improve every new session. Utilized retained knowledge from time taking Discrete Math to help others through places I know are demanding.

Research

- **Protein Synthesis Modeling - Razvan Marinescu Molecular Dynamics Machine Learning Lab |** *Undergraduate Researcher* — **Dec. 2023 - Present**
  - Assisting in research under the supervision of a professor and their Ph.D. students, where technical skills in Bayesian Statistics, Machine Learning, Discrete Mathematics, Python, and data visualization with libraries such as NumPy, SQL, and Pandas are being applied.
  - Actively working with peers during 3-hour meetings twice a week and more individually to apply a Neural ML model to speed up the process of simulating protein self-assembly in viruses with the goal of a human brain cell simulation for medical applications. Familiarity working with tools such as Bizon and data visualization software.
- **Computer Vision Video Recognition - Eric Wang Research Lab |** *Undergraduate Researcher and Data Scientist* — **Jan. 2023 - Present**
  - Creating and training a machine learning model to recognize the features of a video by gathering data on dozens of videos, drafting reasoning, counterfactual, future prediction, and domain-specific inquiries to create a tool comparable to Google's Bard in terms of video recognition capabilities.
  - Tasked with developing a model with equally efficient output given resource constraints.

Projects

- **MPL Learn Deep Learning Library from Scratch** | *Python, NumPy, Pandas, MatPlotLib* — **Jan 2023 - Present**
  - Combining skills cultivated from clubs, research, coursework, and independent research to create a Machine Learning library from scratch in Python. Utilizing libraries such as NumPy and Pandas to implement various Supervised and Unsupervised models and concepts such as Linear Regression, Logistic Regression, Principal Component Analysis, Singular Value Decomposition, Brain-Inspired Spiking Neural Networks, Recurrent Neural Networks, Clustering with K-Means, and Convolutional Neural Networks.
  - Applying deep theoretical linear algebra, statistical, and calculus skills to be able to code each of these from scratch. Inspired by machine learning libraries such as PyTorch, Scikit Learn, and Keras, but built without.
- **Computer Vision Online Course |** *Python, NumPy, Pandas* — **Dec 2023 - Present**
  - Developed a C-based text encryption and decryption program utilizing the Huffman encoding algorithm, which applied data structures such as Priority Queues, Data Buffers, and Bitwriters to transform the character data, along with my expertise in file handling, debugging, and memory management.
  - Demonstrated a thorough understanding of and proficiency in implementing complex algorithms to transcribe encrypted input message strings safely.
- **Beleaguer** | *Python, PyQt, NumPy, C++, Godot* — **Mar. 2019 - Present**
  - Developed a virtual adaptation of my board game in Python using UI libraries such as PyGame and PyQt, and data handling with Pandas NumPy to control the logic of the board itself and piece characteristics. Knowledge of these libraries was self-taught over 9 months.
  - Rebuilt the project starting in July 2023; now utilizing C++ with the Godot game engine. Leveraging C memory management capabilities C from CSE 13s and 101 cojoined with self-taught for three months; class handling in C++, game engine usage, and sprite work.

Technical Proficiencies

- **Programming Languages / Libraries**
  - Proficient in Python, C, C++, NumPy/Pandas, PyTorch, Tensor Flow, SNN Torch, SKLearn, CUDA, RISC V Asm, SQL, HTMLR, SQL, HTML
- **Developer Tools / Technologies**
  - VSCode, PyCharm, Google Workspace, GitHub, Linux, Ubuntu, Virtualbox, Parallels
- **Languages**
  - Speak/Read/Write English, Spanish

Leadership / Student Involvement

- **Sky Is No Limit ML from Scratch | Python, NumPy, Pandas** — **Jan 2023 - Present**
  - Engage in weekly workshops, study sessions, community outreach, informational lectures, hackathons, and group projects with peers and mentors who share a passion for everything related to Machine Learning and Artificial Intelligence.
- **Neurotech UCSC | Club Member** — **Sep 2022 - Present**
  - Attend weekly meetings both with a general body and with 4-8 team members to work on the machine learning and data processing aspect of our Virtual Reality Electromyography project.