Brandon Pardi

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Education

University of California, Merced
BS in Computer Science and Engineering (High Honors)
August 2021 – December 2023
GPA: 3.95

Sierra College
AS in Computer Science, Mathematics, Physics, and Natural Science
August 2017 – May 2021
GPA: 3.35

Fellowships/Honorships

- **US Census Bureau Data Science Fellow** (Summer 2024)
- **Outstanding Student Award for Computer Science and Engineering** (Fall 2023)
- **NSF-CREST Fellow** (Fall 2022 – Spring 2023)
- **Chancellor's Honor List** (Spring 2022)
- **Dean's Honor List** (Fall 2021, Fall 2022, Fall 2023)

Skills

Programming Languages

- Python (Advanced)
- SQL (Proficient)
- C/C++ (Proficient)
- HTML/CSS (Proficient)

Technical Skills

- Data Science/Machine Learning
- Data Visualization/Analysis
- Linux/Unix Terminal Usage
- Neural Network Development
- Computer Vision
- LLMs
- Algorithm Design
- Database Systems

Soft Skills

- Self-motivated
- Independent
- Team-working
- Adaptability

Domain Expertise

- Biophysics
- Surface Sciences
- Cell Mechanics
- Cardiology
- Audio
- Educational Technology

Experience

United States Census Bureau Data Science Fellowship
June 2024 – August 2024
- Developed a pipeline for classifying benefits from documents using NLP techniques and LLMs.

Computational Tool Developer, MECHANO3B[i]OLOGY Lab at UC Merced
June 2022 – June 2024
- Expedited data analysis workflow.
- Provided intuitive ways for researchers to navigate software.

Lawrence Livermore National Laboratory Data Science Challenge
July 2023
- Classified different heart diseases from 12 lead ECG data.

- Designed a model architecture with skip connections to predict activation graphs of 75 different points in the myocardium with an R2 score of 0.96.

Project Lead: Automated Rodent Detection Pipeline for Agrecom
January 2023 – May 2023
- Assigned tasks for developing/integrating different facets of the program.
- Trained a custom image classifier to detect rodent presence from cameras.

Research Projects

pyQCM-BraTaDio
- Designed Python algorithms to scrub, reduce, analyze, and model thousands of data sets for Quartz Crystal Microbalance with Dissipation experimental data.
- Created graphical user interfaces for intuitive use by researchers.

Marker Tracker
- Employed numerous computer vision techniques to track cell movements and surface areas.
- Created intuitive methods for visualizing all tracked data.

Student-Centric Team Formation for UC Merced Computer Science Capstone Classes
- Designed an algorithm to form teams and pair them with industry projects based on various constraints such as student skill sets and preferences.
- Performed text data mining using a QA LLM to extract skill sets required for projects.

Multi-Model Noise Cancellation Pipeline
- Developed a pipeline with audio classifier to LLM to source separator.
- Used historical context and RLHF to respond to user preferences.

Intensity Profile Analyzer
- Extracted Fiji data and visualized it with an interactive plot.
- Fitted Gaussian models to selections to find local minima.

Neural Network Visualizers
- Developed basic neural networks from scratch using no machine learning libraries.
- Created interactive plotting tools to visualize the network's learning process.

Publications

- Pardi BM, Ahmed ST, Flores SJ, Maers LE, Yanez Soto B, Andresen Eguiluz RC. *pyQCM-BraTaDio: A tool for visualization, data mining, and modelling of Quartz crystal microbalance with dissipation data.* Journal of Open Source Software, 9(99), 6831 (2024). DOI: 10.21105/joss.06831
- Smith AM, Inocencio DG, Pardi BM, Gopinath A, Andresen Eguiluz RC. *Facile determination of the Poisson's ratio and Young's modulus of polyacrylamide gels and polydimethylsiloxane.* ACS Applied Polymer Materials 6(12): 2405-2416 (2024). DOI: 10.1021/acsapm.3c03154
- Pardi BM, Adhikari A, Chandrasekhar S. *Student Centric Team Formation: Inspiring Project Success Through First Come First Serve Skill/Preference Scoring.* 2024 (in preparation)