Santiago Perez Lugo

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Education

University of Virginia May 2026

Bachelor of Science in Computer Science | Minor in Business

GPA: 3.84 | Major GPA: 3.96

Relevant Courses: Machine Learning, Software Development, Computer Systems Organization II, Data Structures and Algorithms II, Discrete Mathematics, Probability

Experience

Undergraduate Researcher | Charlottesville, VA March 2024 – Present

UVA Computer Science Department

- Develop a baseline database for binary analysis by aggregating over 100 public GitHub repositories and Python libraries, enhancing the dataset for a binary stream comparison tool
- Lead controlled perturbation experiments on over 100 unique software instances to systematically explore the impacts of code modifications, achieving a 23.8% improvement in the model's ability to predict binary outcomes accurately
- Implement Graph Convolutional Network (GCN) models to analyze and align binary code, utilizing TensorFlow to process embeddings and PyTorch for handling graph-structured data

Ordinary Differential Equations Teaching Assistant | Charlottesville, VA August 2023 – Present

UVA Applied Mathematics Department

- Engage with students in a 100 student math class to address questions and assist with intricate ODE concepts
- Host office hours and manage over 150 grading tasks weekly

Google Ads and Website Manager | Charlottesville, VA January 2024 – March 2024

Kamp for Kids

- Updated website regularly to align with the latest objectives and user needs by leveraging data from Google Analytics to refine website content and designs
- Employed Google Ads and Tag Manager to design and supervise effective, budget-friendly advertising campaigns

Projects

Vista | *PyTorch, MongoDB, React, Flask*

- Developed a PyTorch-based recommendation model achieving an accuracy of 85% in predicting user preferences across a dataset of over 30,000 TV shows
- Planning on utilizing MongoDB for efficient storage and management of user profiles, game metadata, and recommendation history
- Planning on implementing a RESTful API using Flask to handle user requests, interact with the database, and serve machine learning model predictions to the React front-end

Ti-Hoops | *PyTorch, MySQL, Node.js, Express*

- Achieved a 66% accuracy rate in predicting the outcomes of 50,000 NBA games across 47 years of data using a PyTorch-based neural network
- Defined predictive accuracy to within 93% of actual points scored by integrating a multi-layer neural network with batch normalization, dropout layers for regularization, and optimization algorithms like Adam
- Engineered a RESTful API using Node.js and Express, for a custom NBA team simulation application
- Deployed on Heroku, ensuring streamlined access to data stored in Amazon RDS via GET requests

BracketBuddy | *Swift, MySQL*

- Developed a dynamic team management and bracket generation iOS app using SwiftUI
- Architected a robust tournament logic handles player additions, team randomization, and bracket generation, accommodating both random and manual player assignments to teams
- Integrated a persistent storage mechanism for saving and retrieving tournament states utilizing MySQL

Technical Skills

Languages: Java, Python, C, SQL (MySQL), JavaScript, HTML/CSS, Swift
Frameworks: Git, PyTorch, React, Flask, Express, Node.js, Linux (Ubuntu)
Dialect: English (Native), Spanish (Native)