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 Architecture, Data Structures and Algorithms, 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

Probability Teaching Assistant | Charlottesville, VA August 2023 – Present

UVA Applied Mathematics Department

- Engage with 100 students in a math class answering questions and explaining complex probability concepts
- Host office hours and manage over 150 grading tasks weekly

Projects

theCourseForum | *Django, HTML/CSS, PostgreSQL, DigitalOcean*

- Collaborated with the development team to enhance the university's leading course review platform, actively used by 85% of the student body
- Implemented course pagination to optimize platform performance, resulting in faster load times and an improved user experience
- Developed proficiency in Docker for containerization, enhancing the efficiency and scalability of full-stack web application deployments

Vista | *PyTorch, MongoDB, React, Flask*

- Developed a PyTorch-based recommendation model achieving an accuracy of 98% in predicting user preferences across a dataset of over 30,000 TV shows
- Utilized MongoDB for efficient storage and management of user profiles, TV show/movie metadata, and recommendation history
- Implemented a RESTful API using Flask to handle user requests, interact with the MongoDB database, and serve machine learning model predictions to the React front-end

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

- Engineered a full-stack web application API using Node.js and Express for custom NBA game simulations
- 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
- Ensured streamlined access to data stored in Amazon RDS via GET requests and deployed on Heroku

BracketBuddy | *Swift, MySQL*

- Developed a dynamic team management and bracket generation iOS app using SwiftUI
- 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, Django, Linux (Ubuntu)
Dialect: English (Native), Spanish (Native)