Patrick Astorga

182 6th Street NW Atlanta, GA, 30332 | (678)-296-6683 | pastorga3@gatech.edu
LinkedIn: linkedin.com/in/patrickmastorga | Portfolio: patrickmastorga.github.io

Summary

A 4th year at the Georgia Institute of Technology pursuing a dual Bachelor/master's degree in mathematics (3.90 GPA). On campus, a member of a Create-X Startup, a peer-to-peer tutor, and a player on the GT Lacrosse Team. Passionate about deep learning and statistical algorithms, circuit design and prototyping, and general programming. Excited to work with an organization leveraging data-driven decision-making to create meaningful impacts against real-world challenges.

Education

Georgia Institute of Technology | Atlanta, GA August *2022 – May 2026*
Bachelor of Science in Mathematics (Data Science thread), Minor in Computer Science (AI thread) | *GPA 3.90*

Georgia Institute of Technology | Atlanta, GA August *2025 – May 2027*
Master of Science in Mathematics | *GPA 3.90*

Relevant Coursework

- **EEE 7331:** Special Topics in Deep Learning
- **CS 4641:** Machine Learning
- **MATH 4210**: Mathematics of Data Science
- **CX 4240**: Computing for Data Analysis
- **MATH 4261 & 4262**: Mathematical Statistics I & II
- **MATH 1554 & 3406**: Linear Algebra I & II

Projects

Overdose Sensing Injector for Opioid Addicts | Startup *April 2024 – Present*

- Through Georgia Tech's **Create-X** program, researched/developed a device to **fight opioid related deaths**
- Designed/manufactured **wearable device** integrating **pulse oxygen and heartrate sensors** with an **autoinjector**
- In **C++**, programmed special protocol of hardware interrupts/CPU sleep modes for **low power consumption**

Chess Engine | Personal Project *December 2023– Present*

- Developed a chess engine in C++ with the **PV-search algorithm** enhanced with **neural network evaluation**
- In **C++**, programmed custom data loader for efficient training of deep neural networks with **pytorch**
- Implemented **integer quantized** neural network architecture **from scratch** for efficient evaluation on CPU

Concussion Detection Device for Contact Sports | Prototype Device *January 2021 – Present*

- Designed/manufactured a **wearable low-cost device** to help **diagnose concussions** in high school athletes
- Synchronized **high-g accelerometer** data with an **IoT network** and a **web application** on the sidelines
- **Patent pending** U.S. Patent Application Publication No. US-2024-0206800-A1
- **Awards:** 1st place; K-12 InVenture Prize State Finals; 3rd place, Invention Convention Worldwide U.S. Nationals

Work Experience

Knack Tutoring | Peer-to-peer tutoring *January 2023 – Present*

- Provide tutoring to students on campus for various **math/physics courses**
- Completed 41 hours of tutoring with a **5-star rating** with 18 ratings and reviews

Mathnasium of Morningside | K-12 Tutoring *August 2024 – May 2025*

- Help K-12 students improve their math skills through **personalized instruction**
- Utilize a variety of approaches to teaching math, including **visual, auditory, and kinesthetic**

Skills

Core Competencies: Problem Solving, Teamwork, Mathematics, Computer Science, Invention process/prototyping
Languages: Python, C++, JavaScript, SQL
Tools/Frameworks: numpy, pandas, pytorch, git/GitHub, CMake, GCC/Clang, EDA (PCB/Circuit design)