

Patrick Astorga

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Summary

A current sophomore at Georgia Institute of Technology majoring in Mathematics (3.85 GPA). Team leader in GT Hackathon, passionate contributor to personal projects, peer-to-peer tutor on campus, and member of the GT Lacrosse Team. Passionate about statistics and game-theory algorithms, programming interesting applications, and prototyping tech solutions for real-world problems. Excited to work with an organization leveraging data-driven decision-making to create meaningful impacts against real-world challenges.

Core Competencies

- Math (Linear Algebra, Probability & Statistics, etc.)
- Programming
- Problem Solving
- Data Structures and Algorithms
- Object-Oriented Programming principles
- Invention process and prototyping

Education

Georgia Institute of Technology | Atlanta, GA

August 2022 – May 2025

Bachelor of Science in Mathematics, Minor in Computer Science; *Faculty Honors* | GPA 3.85

Projects

Concussion Detection Device for Contact Sports | Prototype Device

January 2021 – Present

- Lead team in invention process of prototype device to help **diagnose concussions**
- Designed and manufactured a **custom PCB** with high-g accelerometer synchronized with an **IoT network** with a **full-stack web app** projecting real-time data into database.
- Filed for non-provisional US patent, patent pending
- **Awards:** 1st place + Health and Medical Technology Award, GT InVenture Prize High School Division State Finals; 3rd place, Invention Convention Worldwide U.S Nationals

Problem Solving Notepad App | Prototype Application

October 2023

- Led team in the rapid development of a smart notepad app for **HackGT X**
- Implemented **RESTful API** integration including **Wolfram Alpha** and specialized **OCR** engine
- Seamlessly integrated data processing with **dynamic front-end** interface to maximize user productivity

Chess Engine | Personal Project

December 2023

- Developed a chess engine in C++ from scratch accompanied with a graphical application with SFML 2.6
- Implemented **iterative deepening** framework with the **minimax algorithm**, enhanced with **alpha-beta pruning**
- Fine-tuned **heuristic functions** and search parameters with extensive testing on large dataset of positions

Skills

Languages: Python, Java, JavaScript, C++, HTML, CSS

Tools/Frameworks: numpy, Node.js, Github, EasyEDA (PCB/Circuit design)

Work Experience

Grounds Guys of Milton | Milton, GA

May 2023 - August 2023

- Served as crew lead on installation projects
- Operated commercial equipment on large scale estates

Lawn Care For Dorset | Marietta, GA

March 2019 - August 2022

- Owned and operated landscape maintenance business for neighborhood customers
- Responsible for equipment maintenance, invoicing, and all customer interactions including sales