# August Herron

augustherron.com | ryderherron@gmail.com | 512-717-1253 | Austin, TX

## Purpose

Driven computer science and physics undergraduate looking to gain professional experience in the fields of math, physics, and computer science.

## Education

**Trinity University** | ***GPA: 3.73 (Overall), 3.96 (CS), 3.93 (Physics)*** San Antonio, TX
*B.S. Computer Science, B.S. Applied Physics, Minor in Math* *August 2022 – May 2026*

## Projects

**Chaotic Pendulum Simulation Web App** | *TypeScript, HTML/CSS, PixiJS, Plotly.js*
- Built a double pendulum simulation web app showcasing non-linear dynamics and chaotic motion.
- Used HTML/CSS and TypeScript along with libraries such as PixiJS and Plotly.js to make a visual and interactive simulation, displaying the pendulum itself as well as phase portraits.
- Showed the derivation of the equations of motion using Lagrangian Mechanics and used Runge-Kutta (RK4) integration to numerically solve the governing set of coupled non-linear ordinary differential equations.
- Built using Webpack and hosted on my personal website using GitHub pages.

**Highpass/Lowpass Filter Audio Plugin** | *C++, JUCE*
- Created a custom highpass and lowpass filter audio plugin that can be used in digital audio workstations, such as Ableton Live, for use in audio processing and music production.
- Built using the JUCE C++ audio plugin development framework.

**Linear Regression ML Model** | *Python, pandas, Seaborn, Matplotlib*
- Built a linear regression ML model from scratch to predict insurance cost using BMI and smoker status.
- Used the pandas Python library to read, sort, and manage data.
- Used the Seaborn and Matplotlib Python libraries to visualize results.

**Dots and Boxes AI Solver** | *Haskell*
- Created a brute force AI solver for the game Dots and Boxes.
- Can calculate the next best move for the user and play against the user with varying levels of depth.
- Created for a school project using the functional language Haskell.

## Experience

**Teaching Assistant** August 2024 – Present
*Trinity University* *San Antonio, TX*
- Teaching assistant and tutor for Calculus III at Trinity's Quantitative Reasoning and Skills center.

**Lifeguard** June 2023 – August 2023
*City of Austin* *Austin, TX*

**Engineering Intern** June 2021 – July 2021
*AECOM* *Austin, TX*
- Civil engineering internship about the Orange Line light rail system being designed in Austin.
- Used CAD software to design a light rail station with 3 other interns.
- Presented the proposed light rail station to the engineers and executives at AECOM and Capital Metro in Austin.

## Skills

**Programming languages:** Java, C/C++, Python, HTML/CSS, JavaScript/TypeScript
**Libraries/Frameworks:** JUCE, pandas, NumPy, Seaborn, Matplotlib, Plotly, PixiJS
**Miscellaneous:** Git, Linux, DSP, Latex, CAD, Digital Electronics, Mathematics and Physics, MS Excel/Word/Powerpoint

## Relevant Coursework

**Computer Science:** Data Structures and Algorithms, Compiler Construction, Competitive Programming
**Mathematics:** Linear Algebra, Differential Equations, Calculus I, II and, III, Discrete Math, Abstract Math
**Other:** Digital Electronics, Electricity & Magnetism, Mechanics, Modern Physics