

August Herron

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PURPOSE

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

EDUCATION

Trinity University

B.S. Computer Science, B.S. Applied Physics, Minor in Math

San Antonio, TX

August 2022 – Present

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

Trinity University

August 2024 – Present

San Antonio, TX

- Teaching assistant and tutor for Calculus III at Trinity's Quantitative Reasoning and Skills center.

Lifeguard

City of Austin

June 2023 – August 2023

Austin, TX

Engineering Intern

AECOM

June 2021 – July 2021

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