

David Ruiz de Castilla



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EDUCATION

Boston College Graduate

Bachelors of Science in Computer Science and a Mathematics Minor

Chestnut Hill, MA

Aug. 2022 – May. 2026

EXPERIENCE

Undergraduate Math Research Assistant

November 2024 – September 2025

Undergraduate Math Research Fellowship

Boston, MA

- Built Dataset Generation Code and Validation Tests
- Built RNN, LSTM, and Transformer models for a math ML task
- Researched Mechanistic Interpretability, a new technique meant to interpolate Transformer Models
- Worked in the field of Algebra and Groups, focusing on the word problem on Coxeter Groups
- Worked on a GPU Cluster with SLURM commands and custom scripts
- **pytorch, pandas, scikit-learn, plotly**

Undergraduate Research Assistant

May 2024 – September 2024

Undergraduate Math research fellowship

Boston, MA

- Wrote code collaboratively to visualize the limit sets of Schottky Groups
- Math research involving: Topology, Number Theory, Groups, Hyperbolic Geometry.
- Presented results to Professors and Colleagues at the EXPML Lab at Boston College

Math & Computer Science Athletics Tutor

February 2025 – Present

Tutors Student Athletes at the Yawkey Athletics Center

Boston, MA

- Adapted to the diverse learning styles and needs of the students.
- Collaboratively creating custom study plans to support students' academic success.

PROJECTS

(* = independent projects)

Math GUI app* | *Java, JavaFX, XML*

July 2021 – September 2022

- Description: Education tool for Elementary-Middle school students
- Developed own configuration language/syntax for applications settings
- Followed Standards for managing files, backups, user input (sanitizing)
- Developed probability algorithm for Settings

Bandcamp Web Scraper * | *Java*

March 2022

- Description: Downloads tracks/metadata as mp3 files given a bandcamp URL
- Features Scrape Algorithm to imitate nested layout of content from HTML page as Object

Apple Playlist Exporter* | *Python, Bash*

March 2024 - October 2024

- Description: pip package where given apple playlist link, downloads tracks and metadata to desktop
- Libraries: BeautifulSoup, Selenium, Mutagen
- Bash: script to build main package and custom json structure package

HTTP Server Project | *Java*

November 2024

- Description: Java Server that can take an HTTP request and deliver HTTP Response with content if applicable
- Libraries: native java.net package
- Experience with DataOutputStream, Hashmaps, DateFormatter
- Required to learn how the application layer works on the consumer and producer ends

TECHNICAL SKILLS

Python: pandas, NumPy, nltk, Matplotlib, scikit-learn, Beautiful Soup, Selenium, Transformers, Conda

Java: JavaFX, AWT, Swing

JavaScript: HTML/CSS, Next.js

Bash: SSH, GNU Utils, Unix Systems, Slurm

Developer Tools: Git Version Control, Vi, VS Code, Android Studio, Python Notebooks