

# Cormac Taylor

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## EDUCATION

Stevens Institute of Technology | GPA: 3.955

Hoboken, NJ

Computer Science, B.S.

September 2022 - May 2025

- **Awards & Honors:** Upsilon Pi Epsilon Honor Society, Edwin A. Stevens Scholarship, Dean's List (all semesters)
- **Relevant Coursework:** Algorithms, Data Structures, Discrete Structures, Concurrent Programming, Operating Systems, Database Management Systems, Machine Learning: Fund. & App., Linear Algebra, Probability & Statistics

## WORK EXPERIENCE

JoStrong (jostrong.com) | TypeScript, MongoDB, Express, React, & Node.js

Hoboken, NJ

Lead Developer

August 2024 - Current

- **Built a team of 5 junior developers** to simplify user experience and automate admin tasks for a local fitness coach.
- Created and implemented an onboarding process to **clarify client vision** and set **benchmarks defining team success**.
- Developing a **full-stack web portal** to achieve client goals of automation, simplification, and future online growth.
- Features include **payment processing**, document signing, user dashboards, nutrition and fitness tracking, etc.

TD Securities | Java, Spring Boot, JUnit, & Agile Development

New York, NY

Software Engineer Intern

June 2024 - August 2024

- **Improved performance** of trade surveillance systems by **6.5%** by spearheading the transition to **Java 17**.
- **Boosted system reliability and efficiency by 15%** by automating enterprise processes in **Spring Boot**.
- Consolidated and **simplified** existing code handling **high volumes** of **trading data** using **Java** and **Spring Boot**.
- **Saved dozens of man-hours** by organizing and creating documentation for compliance technology systems.

## PROJECTS (see cormac-taylor.com)

Chat App | Erlang & Concurrency

November 2024 - November 2024

- Engineered a **real-time chat application** in Erlang, implementing **robust message-passing protocols** and a **scalable architecture** for seamless communication between client, chat room, GUI, and server processes.
- Implemented **user commands** and **dynamic workflows**, including joining/leaving chat rooms, username updates, and message handling, ensuring **system stability** and **responsiveness**.

Eigenfaces | Python/Jupyter Notebooks & Machine Learning

November 2024 - November 2024

- Implemented **Principal Component Analysis (PCA)** from scratch to reduce the dimensionality of face images.
- **Visualized eigenfaces** and **analyzed reconstruction performance**, plotting error trends for different PCA dimensions.

Diabetes Classification | Python/Jupyter Notebooks & Machine Learning

October 2024 - October 2024

- Developed a **logistic regression** classifier using **Maximum Likelihood Estimation (MLE)** and implemented **batch gradient descent** from scratch to optimize model parameters then **visualized classifier boundaries**.
- **Optimized hyperparameters:** learning rate and weight initialization, to improve model accuracy and performance.

Sports Team API | Javascript, Node.js, Express, & MongoDB

October 2024 - October 2024

- Developed a **RESTful API** using Node.js, Express, and MongoDB to manage sports teams and their games, supporting **CRUD operations**, while separating concerns into configuration, data, and routes modules.
- Implemented **robust input validation** and **error handling**, ensuring strict data integrity rules for all data types.
- **Integrated complex business logic**, including **dynamic record updates** and team **data validations** for game creation.

Multiplayer Trivia Game | C

May 2024 - May 2024

- **Increased performance** by leveraging idle time – processed questions while players wait for players to join.
- Engineered a **real-time multiplayer trivia game** utilizing **socket programming** and the **client-server model** offering uncapped game size and classic or custom trivia questions.

Custom CPU and Assembler | Python

December 2023 - December 2023

- Designed a custom **ARM-style CPU** using an **open-source** project supporting **Assembly's** addition, multiplication, load register, and store register instructions. Additionally offering support for immediate numbers.
- Developed a corresponding assembler in **Python** to translate programs into machine code for the CPU to process.

## TECHNICAL SKILLS

**Languages:** Java, Groovy, Python, C++, C, PostgreSQL, MongoDB, Javascript, TypeScript, HTML/CSS, Erlang, OCaml

**Tools:** VS Code, IntelliJ, Maven, Jira, Confluence, Microsoft 365 Applications, Google Workspace, SPIN

**Technologies/Frameworks:** React, Node.js, Express, Handlebars, Spring, JUnit, Linux/Unix, Git,

**Operating Systems:** MacOS, Ubuntu, Debian, Windows

## EXTRACURRICULARS

**Hobbies:** Weight Lifting, Trail Running, Woodworking, Smoking Barbecue, Reading Books