John Farrell

john_farrell@brown.edu johnfarrell.io linkedin.com/in/johnsfarrell

---

EDUCATION

Brown University - Providence, RI **GPA: 4.0**
Sc.B. in Mathematics and Computer Science *Expected Graduation: May 2026*

- **First Place** - **Feature Matching Algorithms, Computer Vision (cs1430):** Placed first among 150+ students by developing the most accurate feature matching algorithm, achieving the highest accuracy in course history.
- **Relevant Coursework:** Software Engineering, Data Structures and Algorithms, Computer Systems, Statistics, Linear Algebra, Machine Learning, Data Science, Computer Vision, Cybersecurity and Data Ethics

Fairport Senior High School - Fairport, NY *September 2018 - August 2022*

EXPERIENCE

BillMax - Mobile Software Development Intern *May 2024 - August 2024*

- Served as the primary engineer developing an offline-first mobile app using Google Flutter and SQLite for 400+ service technicians.
- Worked in 1 week agile development cycles, using team **JIRA** storyboards and tickets.
- Collaborated closely with designers and seniors engineers to integrate with existing REST API service.

Paidly - Software Engineer Intern *June 2023 - August 2023*

- Managed the development lifecycle for a critical account verification system, encompassing design documentation, prototypes, pipeline management, and database schema design.
- Leveraged **Mastercard's Open Banking platform** to instantly verify bank accounts.
- Leveraged the Jest framework to craft 200+ unit tests across 60+ suites, achieving 99.7% code coverage.

Sharp Notions - Software Engineer Intern *June 2022 - August 2022*

- Demonstrated high-proficiency with full-stack development.
- Designed engaging user interfaces with Figma, TypeScript, and Next.js.
- Successfully deployed a REST API service utilizing Node and PostgreSQL, critical for managing client information.

RESEARCH

Brown University, Zelma AI - Research Assistant *May 2024 - Present*

- Developing Zelma AI in collaboration with **Emily Oster**, a New York Times best-selling author and professor.
- Partnering with **OpenAI** to perform SQL queries and create interactive visualizations from plain English.
- Streamlining data pipelines to process 100,000,000+ rows of CSV data, using **Prefect** flows
- Orchestrated and deployed full-stack application, using **Google Cloud Platform** (GCP), GCP Kubernetes Engine, and **Vercel**

EXTRACURRICULARS

Brown University, cs1430 (Computer Vision) - Head Teaching Assistant *March 2024 - Present*

- Managing a staff of 10+ TAs and 160+ students, acting as the touchpoint between TAs and professors.
- Developing Gradescope autograder for coding assignments.
- Course covers topics of computer vision, including image filtering, convolution, stereo vision, camera geometry, and convolutional neural networks.

Stanford University - Section Leader Instructor *May 2024 - Present*

- Teaching Stanford's introductory Python course to a global audience of students via weekly lectures
- **Code In Place** works with students from all continents (including Antartica). I worked primarily with students in North and South America, as well as the Republic of Congo.

Brown University, cs0020 - Head Teaching Assistant *March 2024 - Present*

- Managing a staff of 10 TAs and 175 students, acting as the touchpoint between TAs and professors.
- Assisting professors by holding office hours, grading, and designing rubrics and assignments.
- Developing and mainting course website.

Brown University, CSCI cs2002 - Undergraduate Teaching Assistant *December 2023 - May 2024*

- Improving students' understanding of privacy and personal data protection in the Information Age.
- Evaluating the scholarly writing of graduate cybersecurity students, providing feedback and guidance.

Brown University, CSCI cs0020 - Undergraduate Teaching Assistant *May 2023 - December 2023*

- Instructed over 200 students, designed and graded assignments in JavaScript, HTML, CSS, and Python.
- Provided comprehensive weekly support through project and lab hours.
- Maintained and regularly updated course website.

Brown University - Collegiate Track and Field Athlete *August 2022 - Present*

- Committing 15+ hours per week to competing as an **NCAA** D1 athlete in the **Ivy League conference**.

AWARDS AND HONORS

Brown University, CSCI 1430 - Best Feature Detection Alogrithm *February 2024*

- Developed the most precise feature detection algorithm in course history. Implementation involved modifying root **SIFT** feature extraction and window optimization, resulting in a 98.7% precision rate.

Kate Youth Hacks 2023 - Best Beginner Hack *January 2023*

- Awarded for the design and implementation of an application for small businesses to divert waste to local charities.

Democrat and Chronicle - Runner of the Year *January 2022*

- Why he is the AGR Runner of the Year: Farrell capped his senior cross country season leaving nothing to chance, lunging to a dramatic winning finish at sectionals followed by a sixth-place finish at states.

P R O J E C T S

RGBIT

Flask, Tensorflow, Keras, MERN

- Maintained a 100% free and open-source application and API to restore color to legacy grayscale photography
- Showcased advanced proficiency in AWS technologies, including Elastic Compute Cloud (**EC2**) and **Route 53**, by deploying a robust machine learning API using Express and Flask, featuring HTTPS secure DNS routing
- Trained a CNN to restore color to grayscale images using VGG-19 U-Net architecture with TensorFlow
- Implemented a secure, stateless user authentication system using public key-private key encryption in Node.js

Machine Learning Speed Ratings

Python, Pandas, Seaborn, NumPy, scikit-learn

- Utilized statistical learning to predict **speed ratings**, a common recruitment metric for cross country athletes.
- Created pipelines to train and tune XGBoost, Linear Regression, Random Forest, and KNN models.

Collegy

MongoDB, Express, React, Node, TypeScript, Python

- Designed and implemented an algorithm that utilized the **College Scorecard API** and user input to recommend universities to Collegy users, optimizing the algorithm to parse through 1,000,000+ data points efficiently.

Web Graphing Calculator

HTML, CSS, JavaScript

- Developed a web-based calculator meant to mimic the **TI-84** graphing calculator.
- The project utilizes local browser storage as the calculator's memory.
- The calculator's graphing and functionality is all implemented on front-end in JavaScript.

Stock Algorithmic Analysis

Python, BeautifulSoup, Selenium, MongoDB

- Conducted fundamental analysis on over 6,000 stocks by creating and applying various algorithms in. Optimized web scaping for resource-friendly gathering to parse over 100,000 data points.

3D Ghost Stories

Spline, OpenAI, MongoDB, Express, React, Node, Heroku

- For **Hack@Brown 2023**, developed a web app for users to generate and share 3D ghost stories.

Reusify

Figma, Svelte, Tailwind, Python, Flask, SQLite, SQLAlchemy, Mithril.js

- **Katy Youth Hacks 2023** prizewinner, orchestrated the design of an application for small businesses to divert waste to local charities.

T E C H N O L O G Y S K I L L S

Programming: Java, Python, JavaScript, TypeScript, CSS, Go, Ruby, PHP, Assembly

Frameworks and Tools: Ruby on Rails, Next.js, React.js, Node.js, Chakra, Bootstrap, MongoDB, PostgreSQL, GraphQL, MySQL, SQLite, Firebase, Figma, Docker, Insomnia, Git, Heroku, Postman, Pandas

---