

Nicholas Byrne

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EDUCATION

Northeastern University

Boston, MA

Candidate for Bachelor of Science in Computer Science, Software Concentration

May 2025

Awards & Activities: Dean's List Award, Kappa Theta Pi Professional Tech Fraternity E-Board

Relevant Courses: Fund. of SWE, Web Dev, Object Oriented Design, Algorithms/Data Structures, Database Design

TECHNICAL SKILLS

Programming Languages: Typescript, Javascript, Python, SQL, Java

Frameworks & Libraries: ReactJS, Bootstrap, TailwindCSS, Express, Selenium, Jest

Developer Tools: PostgreSQL, MySQL, Vercel, Docker, NodeJS, MongoDB

EXPERIENCE

Software Developer Co-Op - RiskAverse, Boston, MA

September 2024 - December 2024

- Developed and maintained web applications using **React.js**, **Next.js**, and **TypeScript**, implementing dynamic UI components along with **Tailwind** to improve the user experience across 3 different projects.
- Improved backend services by building **RESTful APIs** with **Flask** and connecting queries using **MongoDB** and **PostgreSQL**
- Automated UI and functional tests using **Selenium** and **Jest**, reducing manual QA time while improving test reliability for marketing and assessment platforms.
- Increased unit test coverage across backend systems using **Pytest** + **MongoMock**, enhancing code quality/reliability.
- Delivered a personalized user profile feature by integrating **Auth0** authentication and real-time data from **Firestore**, boosting user accessibility and engagement.

Research Technician Co-Op - Harvard Medical School, Boston, MA

January 2022 - June 2022

- Worked in the Lee Lab in the Neurobiology Department to develop, map, and construct 3D datasets of different modalities and biological models, including the mouse brain, drosophila brain, and human cerebellum.
- Enhanced Connectomic dataset accuracy for over 4,000 neurons and 150,000 synapses by analyzing patterns and **optimizing data correction algorithms**, increasing data reliability by 30%.
- Led quality assurance for neural pathway mappings, reviewing and correcting thousands of EM segments using **CATMAID** and **FlyWire**, improving automated detection accuracy by 25%.
- Developed **R-based tools** for visualizing neural connections, facilitating data interpretation and presenting findings to research peers.

Projects

LifeWiki | Typescript, Javascript, React, Node, Express, Supabase, TailwindCSS

January 2025

- Engineered a full-stack wiki platform using **Next.js 14**, **TypeScript**, and **Supabase**, leveraging server-side rendering and server actions to optimize performance and scalability. Deployed using **Vercel**.
- Designed and implemented a dynamic tagging system with real-time filtering using **React hooks**, URL-based state management, and **PostgreSQL** junction tables for flexible content organization.
- Built a secure authentication system with **Supabase Auth**, including email verification, password reset flows, and row-level security policies to safeguard sensitive user data.
- Developed responsive and accessible UI components with **Tailwind CSS**, **Lucide**, and **shadcn/ui**, incorporating dark/light mode theming, dynamic searching, and real-time markdown editing with React hooks.
- Architected a scalable database schema in **PostgreSQL** and enhanced the user experience by adding real-time activity tracking, an analytics dashboard, and full-text search functionality

Anime List React Web App | JavaScript, React, Bootstrap, Node, Express, MongoDB

September - December 2023

- Built and deployed a full stack web app using **MERN stack (MongoDB, Express.js, React, Node.js)**, focusing on full-stack development principles and best practices where users could view, review, and rate shows.
- Engineered the backend using **Node.js** and **Express**, ensuring efficient handling of **RESTful API** requests and reliable data processing, as well as **Redux** for consistent and predictable state management
- Implemented a **MongoDB database** for robust data storage and retrieval, handling complex data structures including show reviews and user accounts.

Activities & Interests

Interests: Ironman Training, Cycling, Running, Strength Training, Computer Hardware, Skiing, Video Production