Contact

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Joshua A. Brown

More

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— Professional Experience —

GitHub/Microsoft *2020–Present*

Senior Software Engineer—GitHub Repos and Search

- Established patterns for delivering react applications inside GitHub.com
- Delivered new features to GitHub Search

Software Engineer III—Azure DevOps

- Owned, extended, and optimized the Work Item Query Language and its auto-optimization engine—an area which had previously been maintained by an entire team
- Trained a machine learning model to proactively identify slow-running dynamic SQL queries and used Shapley values to identify opportunities to improve query auto-optimization
- Delivered a refreshed UX for Azure Boards to drastically improve accessibility
- Won first place in GitHub's internal 2020 Code-to-Cloud Hackathon in the Team Productivity category by building a chatbot for sharing interactions with live product telemetry
- Addressed time-sensitive live-site incidents and outages to support Microsoft's SLAs with its customers

SAS Institute—Data Visualization R&D *2017–2020*

Senior Associate Software Developer

- Built cutting-edge applications and libraries based on WebAssembly for the SAS Viya platform, using TypeScript, JavaScript, and C++
- Led the development of a framework for writing integration tests for the interface layer between JavaScript host code and a WebAssembly-based C++ runtime
- Delivered a new customer-facing application for creating data visualization templates, working on a team of two
- Designed a tool for encapsulating the team's complex karma configuration and distilling it into options specific to the development environment
- Drove inner-source practices by supporting the adoption of tools I designed by teams throughout the company

MetLife, Inc. *2014–2016*

Software Development Engineer II

- Developed an enterprise application used by underwriters to renew group benefits insurance products for over 10,000 companies per month
- Re-implemented the application-wide search, reducing end-to-end request time by a factor of 1000
- Led a team of software engineers in building a proof-of-concept for a "next-phase" application built on Spring Boot and Angular; consulted for teams using it as a prototype as it became a standard for new projects
- Taught then-new technologies such as AngularJS and Play to senior software engineers new to the frameworks, and was the "go-to" subject matter expert
- Implemented a report automation system, replacing over a dozen manual reports per month

UNC Department of Physics *2013–2014*

Supplemental Instruction Leader

- Planned and led three Supplemental Instruction sessions per week to teach physics students effective problem solving strategies
- Created a 100-page supplemental textbook to offer alternative explanations for complex topics
- Organized and facilitated group problem-solving sessions for introductory physics students

— Projects —

@josh-brown/vector

- Built a linear algebra package in TypeScript from the ground up; currently available on NPM
- Implemented matrix and vector operations, eigenvalue finding, matrix factorizations, machine learning algorithms and applications to statistics and calculus
- Achieved 100% test coverage for functions and 99.5% coverage for lines

Unicorn CLI
- Developed a command line interface for interacting with SAS Data Visualization R&D's distributed build system
- Replaced a manual process with a developer-friendly, automation-friendly workflow
- Application was widely adopted and attracted contributors from throughout the division

Technical Skills

Languages:	TypeScript/JavaScript, C#, Java, Ruby, C++, Python, BASH, SQL, MatLab, LaTeX, HTML/CSS
Tools:	Git, Node.js, NPM, Grunt, Gulp, Maven, Webpack, Jenkins, Selenium
Libraries:	React, Angular, Spring, Hibernate, Rails, Pandas, NumPy, Scikit-learn, JUnit, Jest
Concepts:	DevOps, Object-Oriented Programming, Functional Programming, Machine Learning, Agile
Software:	GitHub, Azure DevOps, GitLab, VS Code, JetBrains IDEs (IntelliJ, CLion, etc.), Eclipse, Atlassian tools (BitBucket, JIRA, etc.)

Education

University of North Carolina at Chapel Hill
- Chancellor's Carolina Scholarship: full ride scholarship including tuition, room, and board for four years
- B.S. in Applied Mathematics with Highest Distinction; B.A. in Physics; Minor in Music
- UNC-Chapel Hill National Merit Scholarship
- Dean's List of Distinguished Students, Seven Semesters
- Phi Beta Kappa: National Academic Honor Society
- Sigma Pi Sigma: National Physics Honor Society
- GPA 3.8

Extracurricular Activities

Founder and Music Director, UNC Tarpeggios a cappella group
- Established one of the most popular and selective a cappella groups at UNC
- Planned and led over 300 rehearsals, seven full-length concerts with hundreds of attendees, and dozens of other live performances
- Managed the production of a $10,000.00 professionally-produced studio album
- Wrote original constitution and bylaws, recruited and auditioned members, and established University recognition
- Arranged over 40 songs performed by the group