Joshua A. Brown

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More
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--- Professional Experience ---

SAS Institute, Data Visualization R&D
Senior Associate Software Developer *2017–Present*

- Built cutting-edge applications and libraries based on WebAssembly for the SAS Viya platform, using TypeScript, JavaScript, and C++
- 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

MetLife, Inc.
Software Development Engineer II *2017*
Software Development Engineer I *2016–2017*
Associate Software Development Engineer *2015–2016*

- 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 small team in building a proof-of-concept for a "next-phase" application built on Spring Boot and Angular, and consulted for teams using it as a prototype as it became adopted company-wide
- Pioneered MetLife's use of new technologies such as AngularJS and the Play Framework on an Agile team, taught AngularJS to senior software engineers new to the framework, and was the "go-to" subject matter expert
- Implemented a report automation system, replacing over a dozen manual reports per month

Technical Associate *2014*

- Re-implemented part of one of MetLife's largest enterprise applications used by over 1300 claims administrators to handle over 800,000 disability claims a year, working on a small, Agile team
- Reduced end-to-end search time by 42% by replacing the outdated user interface with a Single Page Application built on Angular, Spring MVC, and a RESTful back end
- Achieved the only perfect score for Technical Aptitude on my team

UNC Department of Physics
Supplemental Instruction Leader *2013–2014*

- 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 group problem-solving sessions among introductory physics students

--- Projects ---

@josh-brown/vector

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

Unicorn CLI

- Developed a command line interface for interacting with the division's distributed build system
- Replaced a manual process with a developer-friendly, automation-friendly workflow
- Generated enough interest to draw users and contributors from across Data Visualization R&D

Predicting Mortgage Rates

- Used data from the Home Mortgage Disclosure Act to build an ensemble model which combines the outputs of a gradient boosting algorithm and a random forest to predict whether a mortgage will be approved
- Designed a flexible, metadata-driven architecture which can easily accommodate new features without a code change.

Technical Skills

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

Education

University of North Carolina at Chapel Hill *May 2014*

B.S. in Applied Mathematics

B.A. in Physics, Minor in Music

GPA 3.83 overall

Academic Honors

- Chancellor's Carolina Scholarship: full tuition, room, and board for four years
- UNC-Chapel Hill National Merit Scholarship
- Dean's List of Distinguished Students, All Semesters
- Phi Beta Kappa: National Academic Honor Society
- Sigma Pi Sigma: Physics Honor Society

Leadership Activities

Founder and Music Director, UNC Tarpeggios a cappella group *2010–2014*

- Wrote original constitution and bylaws, recruited original members, and established official University recognition
- The only student at UNC to be elected Music Director of an a cappella group four years consecutively
- Planned and led over 300 rehearsals, seven full-length concerts, and dozens of other live performances
- Managed the production of a $10,000.00 professionally-produced studio album
- Arranged over 40 songs performed by the group