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**JOSHUA A. BROWN****More**

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**Professional Experience**

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

- Worked with JavaScript, TypeScript and C++ to build cutting-edge web applications based on WebAssembly for the SAS Viya platform
- Designed a tool for encapsulating our team's complex karma configuration and distilling it into options specific to our development environment
- Worked on a smaller team of two to deliver a new customer-facing application for creating data visualization templates

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

- Developed an enterprise application used by underwriters to renew group benefits products for over 10,000 companies per month
- Pioneered MetLife's use of new technologies such as AngularJS and the Play Framework on an Agile team, taught Angular techniques to senior software engineers new to the framework, and was the "go-to" subject matter expert
- 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 4, which was in turn used as a prototype for new projects company-wide, and consulted for other teams using it as a template
- Implemented a report automation system, replacing over a dozen manual reports per month

**MetLife Tech University Professional Program, MetLife Inc.***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- Reduced end-to-end search time by 42% by replacing the outdated user interface with a Single Page Application built on Angular, Spring MVC, and a RESTful back end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

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

- Planned and led three weekly Supplemental Instruction sessions to teach students effective problem solving strategies
- Facilitated group problem-solving among introductory physics students

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**Projects**

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**@josh-brown/vector**

- Built a linear algebra library in TypeScript from the ground up; currently available on NPM
- Implemented basic 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 our 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.

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### Technical Skills

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**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.)

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### Education

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**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

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### Academic Honors

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- 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

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### Leadership Activities

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**Founder, Music Director, UNC Tarpeggios a cappella group**

*2010–2014*

- Wrote original constitution and bylaws, recruited original members, and established official University recognition
- Planned and led over 200 rehearsals, seven full-length concerts, and dozens of other live performances
- Arranged over 40 songs performed by the group
- Credited as a producer on a \$10,000.00 professionally-edited studio album