

# Brandon S. Martin

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## SUMMARY

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Software Developer with a passion for constructing software solutions with an emphasis on flexibility and reusability. As a developer at CNA for 2+ years I've continually invested time into designing reusable software abstractions and process automations to increase our team's efficiency and find innovative solutions. I'm committed to constantly learning and exploring new technical avenues

## SKILLS

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Java, C#, C++, Kotlin, Python, SpringBoot, Extreme Programming, CI/CD, Design Patterns, Hibernate, Concurrency, Sockets, WinForms, REST APIs, UML, Functional Programming, Mocking, DSL

## EDUCATION

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**DePaul University** – Chicago, IL

*Bachelor of Science in Computer Science*, June 2019

- Cumulative GPA: **3.77 / 4.00 (Magna Cum Laude)**

## EXPERIENCE

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**CNA Insurance** – Chicago, IL

June 2019 to Present

*Application Developer* | March 2021 to Present

*Associate Application Developer* | June 2019 to March 2021

- Built backend quoting REST APIs in Spring Boot using Java & Kotlin for our small business clients
- Followed Agile development practices as well as iterative development, code reviews, and demos
- Tested our code with unit, integration, and mutation tests and used linters to improve code quality
- Documented and drew UML diagrams for new projects and existing ones that lacked design notes
- Built custom tools and dashboards to speed up development tasks and monitor application health
- Participated in campus recruiting and helped new hires get acclimated to our technology stack

**DePaul University Innovation Lab** – Chicago, IL

January 2018 to June 2019

*Software Engineer*

- Developed software for local company clients using a variety of technologies and Agile practices
- Worked with data analysts to integrate Python machine learning model into Swift app for Allstate
- Developed a C# email crawler and parser to automate a previously manual workflow for CDW
- Coded front-end for a C# WinForms app and documented it with Doxygen for Continental Tires

## WORK PROJECTS

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**Rules Engine Prototype (CNA)**

**Duration:** 6 Months

**Tech Stack:** Java, Kotlin

- Developed an embedded Kotlin DSL for our team to write self-documenting API validation rules
- Wrote a frontend parser to parse the DSL into an AST that can be both executed and documented
- Wrote a backend interpreter to execute the rules and produce consistent error messages and paths
- Wrote a renderer to write out the rules as an Excel spreadsheet or as JSON for web consumption

## **CNA Central Quoting APIs**

**Duration:** 24 Months

**Tech Stack:** Java, Springboot, Hibernate, Concourse CI, PostgreSQL

- Developed quoting APIs using a non-blocking reactive programming model in Spring 5 WebFlux
- Restructured our request and response class hierarchy to allow for code reuse using polymorphism
- Wrote a Lens library to read data and generate paths for nested nullable objects in a type-safe way
- Sped up quoting time through benchmarking to find caching and asynchronous call opportunities
- Built CI/CD pipelines to automate our build process and deploy our app to Google Cloud Platform

## **PERSONAL PROJECTS**

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### **Uno (C++)**

- Recreated the classic Mattel card game in C++ with text graphics and multiplayer over the network
- Developed a command queue to serialize and broadcast game events to clients over sockets
- Implemented a Listen Server model where one player acts as the authoritative host in online games
- Built a reusable text user interface library on top of ncurses to simplify drawing game objects
- Developed a timer system to handle animations and to trigger game events at specific times

### **Space Invaders (C#)**

- Recreated Space Invaders as a class project using basic C# and a simple 2D graphics library
- Implemented 10+ common design patterns like Observer, Visitor, Template Method, and more
- Utilized custom preallocated object pools to minimize halting caused by garbage collection
- Used a Composite design pattern for the alien grid to efficiently test for collisions and delete aliens
- Used a State pattern to transition between attract, single-player, multi-player, and scores scenes

### **Multithreaded Maze Solver (C++)**

- Refactored a single-threaded maze solver into a multithreaded solution for a ~2x speed increase
- Combined the results from multiple search threads together in order to form a complete path
- Utilized C++11 threading techniques such as futures, condition variables, mutexes, and atomics

### **Puzzle Solver (Java)**

- Developed small Java AI framework for solving single-agent puzzles using popular search methods
- Implemented search algorithms like BFS, DFS, best-first, uniform-cost, and A\* for comparing results
- Supplied interfaces for users to implement, such as the state of the puzzle and actions to perform

### **Baby Name Generator (Java)**

- Wrote a Java program that, given a collection of names, will produce similar sounding names
- Built a Markov Model from a list of hundreds of baby names and used it to generate the new names
- Expanded the solution to work with words instead of just letters to form similar sounding sentences

## **LINKS**

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**Website:** [www.bdon.dev](http://www.bdon.dev)

**LinkedIn:** [www.linkedin.com/in/brandon-martin-0a7772a5/](http://www.linkedin.com/in/brandon-martin-0a7772a5/)

**Github:** [www.github.com/bmartin5263](http://www.github.com/bmartin5263)