

# Hudson Bush

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## Education

### University of Michigan

*Bachelor of Engineering in Computer Science*

GPA: 3.3/4.00

Coursework: Data Structures and Algorithms, Computer Organization, Foundations of Computer Science, Web Design, Data Oriented Programming, Programming and Elementary Data Structures, Intro to Computers and Programming Algorithms, Discrete Mathematics, Linear Algebra, Calculus I, Calculus II, General Physics I, General Physics II

**Ann Arbor, MI**

*April 2025*

## Skills & Technical Tools

**Languages:** C++, C, Python, Java, SQL, HTML/CSS

**Technologies:** AWS (Certified Cloud Practitioner), Git, SQLite, Beautiful Soup, Matplotlib

## Projects

### University of Michigan

*Taxi Dispatch Web Application*

**Ann Arbor, MI**

- Built a serverless backend for a web application mimicking a taxi dispatch service using AWS Lambda, S3, DynamoDB, API Gateway, and other core AWS services.

*Traveling Salesperson Problem*

- Implemented various algorithms to calculate a Minimum Spanning Tree of a given graph, finding the subset of edges with the lowest weight cost to connect all vertices
- Utilized an arbitrary insertion algorithm, minimizing the total distance traveled while visiting each location exactly once and returning to the starting point
- Implemented a branch and bound algorithm to guarantee an optimal solution for the TSP to find the shortest tour by evaluating all possible routes and pruning hopeless branches based on lower bounds

*Natural Language Processing and Machine Learning*

- Developed a program that used machine learning to identify the subject of blog posts
- Utilized binary search trees and recursive functions to build a classifier that could be trained to discern the subject of a course related post

*SimpleQL*

- Developed a program emulating a relational database with an interface supporting 8 different commands for table creation, manipulation, and index generation
- Implemented functionality for conditional queries and rapid data access through the creation of both binary search tree and hash table indexes

*Office Hours Queue Web Server*

- Created a web app to mimic an office hours queue used for many university classes
- Implemented a program in order to create a REST API that can convert JSON data to an internal linked list data structure and return an appropriate serialized response to the user while efficiently managing memory

## Work Experience

### Happy Glass Windows

*Window Washer*

**Boulder, CO**

*June 2021 – Present*

- Responsible for coordinating and scheduling with existing customers
- Acquired and negotiated new accounts for residential and commercial clients

### Boulder Valley Lacrosse Club

*Lacrosse Coach*

**Boulder, CO**

*August 2020 - Present*

- Coached 3<sup>rd</sup> - 8<sup>th</sup> grade aged lacrosse players in camps, practices, and games
- Collaborated with program directors and entire coaching staff to create practice plans and team schedules

## Leadership Experience

### Fairview High School

*National Hispanic Scholar*

**Boulder, CO**

- National award given out by the College Board for academic distinction to underrepresented students