






Pranav Varshney

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EDUCATION

University of Michigan

Ann Arbor, MI

Bachelors of Science in Computer Science & Statistics

May. 2026

CS Courses: Data Structures, Algorithms, CS Theory, CS Organization, Database Systems, Web Systems

Stats Courses: Computational Statistics, Data Analysis, Linear Algebra, Calculus I-III, Probability Theory

Extra-curriculars: Michigan Hackers, Michigan Research and Discovery Scholars, Michigan Poker Club

TECHNICAL EXPERIENCE

United Wholesale Mortgage

Pontiac, MI

Software Engineer Intern

May. 2024 - Aug. 2024

- Working with **Applications Development** and **Data Engineering** teams, writing backend of a datamart for company use and linking it to frontend; will further write risk prediction models with **Machine Learning** team

The Michigan Daily

Ann Arbor, MI

Web Developer

Oct. 2023 - Apr. 2024

- Lead error handling and debugging processes, fixing **75+** website errors to make user experience more enjoyable
- Cut down website vulnerabilities by **40%** with team, maintaining site's integrity through user authentication
- Increased website efficiency by **44%** reducing redirects and http requests, raising engagement length by **10%**

Ratna Global Technologies

Newark, CA

Software Engineer Intern

Jun. 2023 - Sept. 2023

- Spearheaded construction of a **Node & React** website used to control a vehicle rental service with **50+** locations
- Built a modifiable chatbot using **OpenAI's API**, automating customer service requests based on client data

RESEARCH EXPERIENCE

The Big-DIG Research Lab

Ann Arbor, MI

Undergraduate Researcher Assistant

Apr. 2023 - Jun. 2023

- Engineered a custom **Python sorting system** for school ranks and locations from 750+ schools automatically, eliminating manual labour and guiding lab to conclude data analysis stage **2 months** ahead of schedule
- Generated supplemental heatmaps and visual aids demonstrating a **99.5%** statistical significance test of findings

London Business School

Remote

Undergraduate Researcher Assistant

Jan. 2023 - Apr. 2023

- Leveraged natural language processing using the **NLTK** library in **python** to extract and input data from **2500+** contracts into a self constructed **SQL** database, optimizing data entry, extraction, and accessing by **25%**
- Determined **90%** significant difference in structure of internal and external contracts through **tableau** and **R**
- Presented findings to over **1000** participants at annual Michigan Research and Discovery Scholars symposium

PROJECT EXPERIENCE

Chess Evaluator: Employing new chess analysis, measuring positional danger based on a heatmap of square safety

C++ Standard Library: Leveraged C++17 features to implement and optimize data structures in standard library, enhancing code efficiency and maintainability while staying up-to-date with latest language advancements.

TSP: Implemented a branch and bound algorithm to speed up the brute force solution for the famous TSP, implementing a custom arbitrary insertion heuristic to improve the time complexity by a more accurate upper-bound calculation.

SQL Imitation: Mimicked simple SQL functionality in C++, customizing C++17 functionality via shell scripting. Harnessed custom SQL functionality to restructure previous research projects, boosting runtime efficiency by 15%

PROGRAMMING SKILLS

Languages: C/C++, C#, Python, Java, R/RStudio, HTML/CSS, Javascript, SQL, LaTeX, Bash, Assembly

Technologies: Linux, Git, nano, nvim, MacOS, Windows, Visual Studio, VScode, Xcode, Zed, JIRA, Docker, Tableau

Libraries and Tools: CMake, Numpy, Pandas, Matplotlib, Jupyter Notebook, NLTK, JSON, Pytorch, Tensor