

Kushal Patel

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EDUCATION

University of Michigan – Ann Arbor

May 2025

Bachelor of Science, Computer Science - GPA: 3.84

ANN ARBOR, MI

- Data Structures & Algorithms - Web Systems - Introduction to Computer Organization
- Programming & Intro Data Structures - Discrete Math - Introduction to Computer Security
- Foundations of Computer Science

EXPERIENCE

Next Play Games | *React Native, React, CSS, SQL*

May 2024 – Aug 2024

Software Engineer Intern

SAN MATEO, CA

- Executed full-stack development for an innovative fantasy baseball game.
- Designed and implemented 3 dynamic pages using React, CSS, and Figma, contributing to an enhanced UI.
- Engineered and documented five API endpoints, effectively managing a PostgreSQL database encompassing over 2,087 athletes and 30 MLB teams.

University of Michigan ITS | *PHP, JavaScript*

Jan 2024 – Apr 2024, Aug 2024 - Dec 2024

Student Software Engineer

ANN ARBOR, MI

- Building 3 plugins that automatically generate alt text via AI for images for over 50 web developers at U of M.
- Leveraging Microsoft Azure and GPT-4V to generate alt text based on image and user specific feedback.
- Developing a WordPress, Drupal, and Google slides plugin with PHP & JavaScript as a full stack developer.

Infinite Degrees | *Python, SQL*

Sep 2022 – Dec 2022

Software Engineer Intern

ANN ARBOR, MI

- Developed an optimized algorithm that quantifies 398 skiing/snowboarding tricks based on difficulty.
- Accessed the PostgreSQL database to assign an overall to 46 users based on uploaded tricks and routines.
- Showcased algorithm on 101 Olympic athletes and embedded to the website: <https://idx.style/rankings>.

PROJECTS

Search Engine | *Python, ReactJS, HTML/CSS*

- Created Hadoop style MapReduce server in Python using TCP and UDP sockets to facilitate manager-worker protocol and fault tolerance. Handled different sockets and program functions through threading.
- Built a MapReduce pipeline that runs the tf-idf algorithm to form an inverted index of 2,936 Wikipedia pages.
- Developed a Flask app and REST API to return a list of page hits, based on PageRank and tf-idf.
- Built frontend UI & deployed to Amazon Web Services: https://kushal5294.github.io/search_engine.html.

NFL Spread Algorithm | *Python, HTML/CSS*

- Leveraged Selenium and Pandas to build a dataframe of 304 metrics for all NFL games in the past 7 years.
- Used TensorFlow to build a neural network regression model that computes the spread of future NFL games.
- 58% win rate and finished +25 units against Draftkings spread from week 10 to Super Bowl.
- Built a templated static site generator (Jinja2) to share bets: https://kushal5294.github.io/nfl_spread.html.

Bank Simulator | *C++*

- Created a bank wire transfer simulator in C++, using priority queues and maps to efficiently apply credits and debits in the order they are set to be executed, while still flagging fraudulent ones.
- Built reporting modes including a list of transactions that took place between timestamps, revenue the bank made, and a summary of the customer's outgoing and incoming transactions.

ADDITIONAL

Languages: Python, C++, JavaScript, ReactJS, HTML/CSS, Java, SQL, PHP

Technologies: Pandas, Flask, Hadoop, TensorFlow, Docker, NodeJS, AWS, SQLite, PostgreSQL, BeautifulSoup

Concepts: Object-Oriented Programming, Machine Learning, Web Development, App Development, Computer Vision