KUSHAL PATEL

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Education

University of Michigan - Ann Arbor, MI   **May 2026**
Bachelor of Science in Computer Science   *GPA 3.84*

- **Relevant Coursework:** Data Structures and Algorithms, Web Systems, Discrete Math, Programming & Intro Data Structures, Introduction to Computer Organization, Foundations of Computer Science, Introduction to Computer Security

Experience

Next Play Games   **May 2024 – August 2024**
Software Engineer Intern   *San Mateo, CA*

- Designed and implemented **4 dynamic pages** using **React**, **CSS**, and **Figma** to add support for fantasy baseball.
- Engineered and documented **15 REST API** endpoints for baseball, effectively managing a **PostgreSQL** database encompassing live stats, scores, and news for over **2,087 athletes** and **30 MLB teams**.

University of Michigan ITS   **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, ensuring web accessibility on university sites and accelerating the workflow 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 suggestions.
- Supporting applications for **WordPress**, **Drupal**, and **Google Slides** platforms using **PHP** and **JavaScript**.

Infinite Degrees   **Aug 2022 – Dec 2022**
Software Engineer Intern   *Ann Arbor, MI*

- Developed an optimized algorithm that weighs **398 skiing/snowboarding tricks** based on difficulty & extrapolated to quantify an individual's skill.
- Measured algorithm's accuracy on a sample of **101 olympic athletes**: https://idx.style/rankings.
- Accessed **PostgreSQL** database to apply the algorithm to **46 active users** based on uploaded tricks and routines.

Projects

Search Engine | *Python, React, HTML, CSS, AWS*

- Created **Hadoop** style MapReduce server in **Python** using **TCP** and **UDP** sockets to facilitate manager to 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 Predictor | *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** that computes the score differential 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 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.

Technical Skills

Languages: Python, C++, JavaScript, ReactJS, HTML/CSS, TypeScript, 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