Kushal Patel

Northville, MI | +1 (734)-406-4636 | email: patelku@umich.edu
LinkedIn: linkedin.com/in/kushal-patel-a3a113252 | Github: github.com/kushal5294

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

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.
- Utilizing Microsoft Azure and GPT-4V to generate concise text based on image content and user feedback.
- Developing a WordPress, Drupal, and Google sites 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 backend Flask app and REST API to return a list of page hits given a search query, sorted on a score factoring 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 +23 units against Draftkings spread from week 10 to Super Bowl.
- Built templated static site generator from scratch 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.

Leadership

Wolverine Sports Analytics - Ann Arbor, MI
Project Lead
- Supervised the development of a March Madness Bracket Predictor and NFL Spread Algorithm in consequent semesters.
- Educated team members on the foundations of machine learning and data analytics.

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