

KUSHAL PATEL

Ann Arbor, MI 48103

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Education

University of Michigan

MS in Computer Science

BS in Computer Science, GPA: 3.8

Ann Arbor, MI

Expected May 2026

May 2025

- **Relevant Coursework:** Advanced Scalable Systems, Distributed Systems, Web Systems, Machine Learning, Database Management Systems, Advanced Compilers, Foundations of Artificial Intelligence, Discrete Math, Computer Organization, Data Structures and Algorithms, Theory of Computation

Experience

Amazon

May 2025 – Aug 2025

Software Development Engineer Intern

Bellevue, WA

- Incoming summer intern.
- Incoming summer intern.
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University of Michigan, Info & Tech Services

Jan 2024 – Apr 2024 & Aug 2024 – Dec 2024

Software Engineer Co-op

Ann Arbor, MI

- Improved image publishing pipeline by **66%** for **50+** UM web developers by building **3** plugins that automatically generate alt text via **generative AI** from Azure OpenAI Service & OpenAI GPT-4o LLM.
- Released open source **Google add-on**, **Drupal module**, & **WP plugin**: https://kushal5294.github.io/auto_alt.html.

Next Play Games

May 2024 – Aug 2024

Software Engineer Intern

Los Angeles, CA

- Launched a fantasy baseball app by syncing MLB data for **2,087** players into a **PostgreSQL** database hosted on **AWS**.
- Built **8** REST API endpoints using **Express.js** and **Redis** to efficiently serve live stats, projections, and news to users.
- Ensured **100%** app reliability by writing automated tests via **Jest** to validate daily box scores and player stats.

Infinite Degrees

Aug 2022 – Dec 2022

Machine Learning Intern

Ann Arbor, MI

- Quantified a snowboarder's skill by devising an **ANN** model via **TensorFlow** to weigh **398** tricks on difficulty.
- Assigned snowboarding skill rating to **87** active users by applying the ML model on user's uploaded tricks and data.

Projects

NFL Spread Predictor | *Python, HTML, CSS*

- Engineered a **Pandas** data frame of **304** metrics for all NFL games from past **7** years by web scraping with **Selenium**.
- Predicted score differential of future games by building a **DNN** via **TensorFlow** library & data frame.
- Accomplished **61%** win rate and finished **+37 units** against DraftKings spread across **181** NFL games.
- Shared weekly picks by scripting a static site generator (**Jinja2**): https://kushal5294.github.io/nfl_spread.html.

Sharded KVStore | *Go*

- Achieved **100%** linearizable consistency by running multi-instance **Paxos** across replicas to decide each log index.
- Enabled **horizontal scaling** by sharding keys into **16** groups & re-balancing server load via a centralized shardmaster.
- Ensured **fault tolerance** under replica crashes and network unreliability via RSM replay & duplicate RPC detection.

Search Engine | *Python, JavaScript, CSS*

- Built **inverted index** of **2,936** Wikipedia pages by running tf-idf algorithm through **MapReduce** pipeline.
- Delivered top **10** page hits by creating **Flask** REST API to consult inverted index & PageRank score.
- Constructed frontend UI & deployed to **AWS EC2**: https://kushal5294.github.io/search_engine.html.

Skills

Languages: Python, C++, Go, Java, C, JavaScript, Typescript, HTML/CSS, SQL, PHP, Bash

Technologies: Hadoop, Docker, MySQL, MongoDB, NoSQL, Postman, DataGrip

Concepts: OOP, Agile, Neural Networks, Unit Testing, Full Stack, End-to-End, Parallel Processing