ISABEL CHEN

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Summary

Software Engineer Intern with proven skills in software development, performance optimization, and troubleshooting. Developed large-scale web solutions using C++ and Python, with hands-on experience in API integration and system documentation. Proficient in Windows and Linux environments, committed to delivering reliable software solutions in dynamic settings.

EDUCATION

University of Michigan **Dec 2025**

Bachelor of Science, Computer Science

- **Coursework:** EECS 281 (Data Structures and Algorithms), EECS 484 (Database Management Systems), EECS 442 (Computer Vision), EECS 485 (Web Systems), EECS 370 (Computer Organization), EECS498 (Search Engine system design)

PROFESSIONAL EXPERIENCE

Temu **May 2024 - Aug 2024**

Software Engineer Intern *Beijing China*

- Designed and optimized large-scale web crawling and indexing pipelines powering Temu's real-time search and recommendation systems, demonstrating strong software development practices.
- Implemented an A/B testing framework for homepage modules, enhancing click-through rate by 3.1% and session time by 6.4%, while integrating change management principles.
- Collaborated with infrastructure and backend teams to optimize systems performance and reduce data latency, applying troubleshooting support techniques.
- Utilized debugging tools such as gdb, valgrind, and perf to diagnose performance bottlenecks, optimize memory usage, and ensure stability in multithreaded C++ services.

OmegaUP **Mar 2025 - Present**

Contributor *Open-source Contribution*

Projects

Trilearn (LLM-powered note-taking and summarization web application) **Jan 2025**

FLASK,TCP SOCKET, RESTFUL API ,MONGO DB, AWS,C++

- Built a RESTful backend in Flask (Python) supporting asynchronous document parsing (PDF, DOCX, MP4), user authentication, and LLM-powered summarization—achieving an 85% average response success rate under concurrent load.
- Engineered a searchable knowledge base with indexing and retrieval logic via MongoDB and Express.js, reducing user query latency by ~40% and boosting relevance of top results by ~22% (measured via BM25 benchmark).
- Deployed services on AWS EC2, integrated S3 for scalable storage, and configured CloudWatch dashboards to monitor traffic, system health, and usage metrics—achieving 99.9% uptime across stress tests.
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Search Engine system design **Jan 2025 - May 2025**

c++, docker, google CloudRun, Python, HTML, MongoDB

- Built a multithreaded web crawler using C++ with TCP/UDP networking, respecting robots.txt, domain rate-limiting, and deduplication to fetch and parse over 1M web pages.
- Implemented a disk-based inverted index using memory-mapped posting lists and delta encoding, reducing storage size by 60% compared to naive representation.
- Designed and optimized custom Boolean query parser and executor, supporting AND, OR, NOT, and phrase queries with <5ms average response latency on a 10K-doc corpus.
- Leveraged term frequency–inverse document frequency(TF-IDF) and BM25 ranking to score results, increasing top-5 relevance accuracy by ~18% over baseline TF-only ranking.
- Introduced query auto-suggest and spelling correction modules using Levenshtein distance + Trie index, reducing user query abandonment by ~25% in controlled tests.

Skills

- **Languages**: C++, python, java, SQL, JavaScript, PHP
- **Tools & Platforms**: MongoDB, Github, Docker, Django
- **Web & Application Frameworks**: React, vue.js, Node.js, Flask, Rest APIs, TCP/UDP, Tailwind CSS, Multithreading
- **Cloud & DevOps**: AWS, Google Cloudrun, Oracle Database
- **Professional Skills**: Software Development, Documentation of Software Changes, Change Management, Troubleshooting Support

Publications

- xiulin chen. Application of Expected Shortfall Regression to Climate Change.