# Jun Xia

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## Education

**University of California, Irvine** **Sep 2021 – Dec 2025**

*B.S in Computer Science with Specialization in Information* GPA: 3.72

**Relevant Coursework:** Data Structure Implementation and Analysis, Database Management, Machine Learning and Data-Mining, Searching Systems, Human Computer Interaction, System Design, Test-driven Development

**Honors:** Dean's Honor List (7 quarters) **Sep 2021 - Dec 2024**

## Technical Skills

**Programming Languages**: Python, JavaScript, Java, Scala, C, C++
**Web & Database**: SQL, MySQL, PostgreSQL, SQLite, MongoDB, HTML, CSS
**Frameworks**: React, React Native, Flask, Streamlit, Next.js, Tailwind CSS, Bootstrap
**Technologies**: Git, CI/CD, Linux, REST API, Docker, Kubernetes, Google Cloud Platform, AWS EC2

## Experience

**Undergraduate Researcher (Demo)** **Jul 2023 – Present**

*Information Systems Group, UC Irvine* *Irvine, CA*

- Directed a team of **4** developers in building **SQLRewriter**, a web platform enhancing the QueryBooster framework by facilitating community-driven SQL query optimization and discussion.
- Designed and developed responsive user interfaces using **Next.js**, resulting in a **20%** increase in user engagement.
- Built and managed back-end services with **Flask** to ensure reliable data storage and retrieval.
- Conducted data migrations and database schema changes to optimize application performance and maintain compatibility with changing business requirements.
- Deployed the application using **Docker** and **Kubernetes**, ensuring high availability and scalability across production environments, supporting thousands of active users with minimal downtime.

**Software Developer (Code)** **May 2024 – Aug 2024**

*Google Summer of Code* *Remote*

- Led the design and implementation of an interactive web interface for an open-source Python library Selector using **Streamlit**, enabling medical chemists with minimal programming experience to efficiently perform data analysis.
- Set up a **CI/CD** pipeline with **GitHub Actions** to automate the process of building **Docker** images and deploying them to DockerHub and **HuggingFace**, enabling thousands of external users to navigate chemical space with support for various file formats like SDF, SMILES, and InChi.
- Selected as one of 40 finalists out of **1,100+** participants to present a lightning talk at the final panel.

**Teaching Assistant** **Sep 2023 – Jun 2024**

*Department of Computer Science, UC Irvine* *Irvine, CA*

- Led lab sessions for **150+** students from intro to intermediate python courses, offering coding and theoretical support.
- Analyzed student learning gaps with other staff members, boosting the instructor's RateMyProfessor ratings by **20%**.

## Projects

**Fablix** | *Java, JavaScript, HTML, CSS* **May 2024**

- Developed a full-stack web application to facilitate online movie browsing and transactions, utilizing a **MySQL** database and **Apache Tomcat** server hosted on **AWS EC2**.
- Enhanced security through **HTTPS**, **reCAPTCHA** integration, and use of **PreparedStatement** to prevent SQL injections, ensuring robust data protection.
- Input **360,000+** movie information through **SAX XML parsing** and developed advanced search capabilities, including full-text search, autocomplete, and fuzzy search, improving search speed by **40%**.
- Set up JDBC **connection pooling**, and configured **load balancing** to distribute database load, increasing system availability by **50%**.
- Deployed the application in **Docker** containers, tested on AWS for seamless containerization and scalability, and configured a **Kubernetes** cluster with automated **master-slave** MySQL setup on **10** instances, utilizing **AWS S3** bucket for persistent state storage, reducing deployment downtime by **80%**.
- Utilized **JMeter** to conduct performance testing on the Kubernetes cluster, measuring the system's throughput under different configurations, optimizing the application's responsiveness and scalability by **30%**.

**ICS Search Engine** | *Python, HTML* **Mar 2024**

- Crafted a specialized UCI search engine that processed and indexed **60,000+** web pages across ICS domains, implementing **TF-IDF** and **PageRank** algorithms to deliver relevant search results.
- Established a high-performance indexing pipeline that processed with efficient storage and retrieval through position-based indexing, document deduplication, reducing duplicate pages by **15%**.
- Boosted search performance by reducing query response time by **70%**, implementing proximity scoring to support natural language queries and phrase matching with improved accuracy.