William He

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Education

University of California, San Diego — San Diego, CA
Master of Science in Computer Science — *Grad Date:* **March 2026**

University of California, Irvine — Irvine, CA
Bachelor of Science in Computer Science — Sept. 2022 - Dec. 2023 | GPA: 3.9

University of California, Riverside — Riverside, CA
Completed 95 credits towards BS in Computer Science — Sept. 2020 - Jun. 2022

Technical Skills

Programming Languages: Java, Python, C, C++, JavaScript, TypeScript, SQL, NoSQL, HTML/CSS
Databases: MySQL, PostgreSQL, Cassandra, MongoDB, Couchbase, Neo4J, Spark
Libraries: Scikit-learn, SciPy, Pandas, NumPy, TensorFlow, Keras, jQuery
Framework: Flask, React, Angular, Node.js, Express
Developer Tools: GitHub, GitLab, Bash, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, Jupyter Notebook
Cloud Platforms: AWS, Google Colab, Google Cloud Platform
Concepts: Machine Learning, Human Computer Interaction, Data Science, Data Analysis, Software Engineering, Frontend, Backend, Full Stack Development, Agile Methodology, Data Structures & Algorithms, Database Management, Computer Vision
Languages: English (Fluent), Mandarin Chinese (Conversational)

Projects

Fabflix | *AWS, GCP, Java, Javascript, MySQL, Apache Tomcat* — Apr. 2023
- Deployed a full-stack application on **AWS** that enabled users to browse and search from a library of over **10,000+ movies**
- Integrated **Google Recaptcha**, preventing fraudulent bots and ensuring secure user interactions
- Improved website response times by **32%** via query optimization on the **MySQL database**, enhancing user experience
- Developed a dashboard for GUI-based database modifications using **Java** for back-end, streamlining data management
- Expanded accessibility by developing an **Android application**, enabling mobile users to access Fabflix's features natively

Examination of Census Income | *Python, NumPy, TensorFlow, Keras* — Mar. 2023
- Analyzed an **Adult dataset** of over **32,500 individuals**, with the goal of predicting whether a person earns over 50K a year
- Implemented **one-hot encoding** to effectively process and transform categorical data for accurate analysis
- Constructed a deep learning model using **Keras** to predict the income level of individuals at an accuracy rate of **85%**
- Enhanced the model's accuracy by **10%** through meticulous hyperparameter tuning and leveraging **GridSearch**

University Search Engine | *Python, Flask, HTML/CSS* — Dec. 2022
- Collaborated with a team to develop a search engine that indexed **88 subdomains** and **56,000 university pages**
- Utilized **Porter stemming** and **TF-IDF scoring algorithms** to extract relevant results from a corpus of **722,870 words**
- Built a user-friendly web interface using **Flask**, allowing for easy navigation and search capabilities
- Boosted search efficiency by implementing binary search in the inverted index, achieving search times of under **100ms**

Sudoku Solver | *Python* — Nov. 2022
- Implemented a Sudoku solver in **Python**, incorporating advanced heuristics and checks such as **Norvig's Check**
- Optimized the solving algorithm, resulting in significant reductions in solving times for large and intricate Sudoku puzzles
- Developed a highly efficient Sudoku algorithm that outperformed **90%** of **120 peer algorithms**

Web Crawler | *Python, HTML* — Oct. 2022
- Scraped and crawled from **10,000+ university websites**, achieving a comprehensive data collection for data analysis
- Integrated **BeautifulSoup** and **Simhash** libraries to streamline scraping and parsing, improving efficiency
- Implemented exception handling for **1,000+ duplicate pages** and invalid websites within the crawl
- Enhanced crawling and extraction by **60%** using the **Simhash library**, boosting the accuracy and relevancy of information

MovieMe | *C++, GoogleTest* — Aug. 2021
- Contributed to back-end development in **C++**, whilst working with a movie database of over **1,000+ movies**
- Devised an algorithm which generates movie recommendations based on user's preferences of movies, actors, etc.
- Worked within a **scrum team**, meeting in weekly sprints to track progress, brainstorm features, and verify goals
- Constructed **20+ GoogleTests** to ensure application stability and facilitate test-driven development