

# Andy He

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## Education

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University of California, Berkeley

June 2023

Bachelor of Arts in Computer Science

## Skills

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**Languages:** C/C++, C#, Java, Python, Rust, x86 Assembly, React, HTML/CSS, JavaScript, Go, SQL, Swift

**Platform/Frameworks:** SpringBoot, Django, Nginx, AWS, Azure, Vite, PyTorch, Scikit-learn

**Tools:** Git, Docker, UNIX, Linux, Vim, GDB

**Database:** PostgreSQL, MongoDB, MS SQL Server, Oracle, MySQL

## Professional Experience

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### DQLabs

Pasadena, CA

Software Engineer Intern, API backend

May 2024 — July 2024

- Developed user and private **REST APIs** in **Django**. Utilized Swagger UI to generate interactive user API documentation. Incorporated the internal API tests into CI/CD pipeline, increasing service availability by 4.5%.
- Developed a **GitHub CI** add-on that automatically tracks downstream dependencies on each **dBt** commit, automating impact analysis and prioritizing impacted assets for testing based on usage, criticality, and data volume. Triggered 50+ times per week.
- Integrated **WhereScape ETL** into client databases, automating data processing by 20% with pre-built environments and scenarios.

### University of California, Santa Cruz

Santa Cruz, CA

Data Science Intern, Science Internship Program

May 2021 — August 2021

- Worked with Prof. Raja's research group to develop **Python**-based **machine learning** pipelines. Utilized **Scikit-learn** and **TensorFlow** to classify weak CN stars and carbon stars in M31, M33 and the LMC datasets.
- Refined models through **hyperparameter tuning**, **cross-validation**, and imbalanced data techniques such as **SMOTE**. Improved classification accuracy by 15%.
- Evaluated models with **ROC-AUC** and other performance metrics to ensure reliable classification. Processed datasets from Keck/DEIMOS, HST/ACS, and CTIO/Hydra using **NumPy**, **Pandas**, and **matplotlib** to visualize workflows.

## Project Experience

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### Avalon online: A web-based implementation of the boardgame Avalon

[Game URL](#), [Github URL](#)

JavaScript, SpringBoot, WebSocket, HTML, REST API, AWS EC2

- Designed and developed server architecture using **SpringBoot**. Implemented **REST APIs** to manage game states, player actions, and data retrieval.
- Implemented real-time communication between players and the server using **WebSocket** and **STOMP Client** in **JavaScript**.
- Built responsive front-end interfaces with **React**, leveraged **Web Storage API** to preserve user data during disconnections.

### RookieDB: A Relational Database

Java, SQL, B+ trees, multigranularity locking, Query Optimization

- Implemented **B+ tree** indices with core features like rebalancing, bulk loading, enabling serial transaction execution.
- Developed a query optimizer with efficient join algorithms like **grace hash join**, reducing I/O cost and improving data-fetching efficiency by over 50%.
- Implemented a lock manager and log recorders to support **SQL concurrency control and failure recovery**.