Amy Cao

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EDUCATION

Colorado School of Mines | Golden, CO

Bachelor of Science in Computer Science – Data Science Track | GPA: 3.9 Expected May 2027

Relevant Coursework: Data Structures & Algorithms, Machine Learning, Software Engineering

Nanyang Technological University | Singapore

GEM Trailblazer Exchange Program Fall 2024

EXPERIENCE

Teaching Assistant, CSCI220: Data Structures & Algorithms Aug 2025-Present

- Advise and mentor students during office hours, resolving specific challenges in data structures and object-oriented programming in C++.
- Pioneered the course's Generative AI policy by drafting a framework that encourages ethical use for conceptual learning and practice while explicitly prohibiting its use for generating assignment solutions.

Student Consultant, Trefny Center Apr 2025-Present

- Deliver live software demos and use-case scenarios to educate faculty on Generative AI capabilities, facilitating discussions on ethical considerations and academic limitations.
- Advocate for the student perspective to shape university policy on emerging Generative AI technology during expert Q&A sessions with 30+ faculty.

LEADERSHIP & INVOLVEMENT

Senator for Academic Affairs, Undergraduate Student Government Apr 2025-Present

- Liaise between the student body and university administration to advocate for undergraduate interests.

Media Chair, Tau Beta Pi Member since 2024; Chair Aug 2025-Present

- Oversee communication and marketing to drive member participation and event attendance.
- Coordinated safety and compliance logistics for an inaugural networking mixer for 80+ attendees.

PROJECTS

Predicting Pet Popularity (**Kaggle Competition**) | Python (TensorFlow, Scikit-learn)

- Developed and evaluated a diverse set of Machine Learning models including Deep Neural Networks with Keras/TensorFlow, and K-Nearest Neighbors to solve a regression task.
- Tuned hyperparameters via Randomized/GridSearchCV, selecting a Support Vector Machine that improved Kaggle ranking by approximately 10 percentile points.

Database Design & Normalization Spotify Project | PostgreSQL

- Designed and implemented a BCNF-compliant relational database schema, structuring complex data relationships to ensure integrity and eliminate redundancy.
- Engineered SQL ETL scripts to clean, validate, and load data, and optimized query performance by approximately 20% through strategic index creation and execution plan analysis.

Wine Quality Classification | Python (Scikit-learn, Pandas)

- Tested Random Forest and Decision Tree models to identify key chemical properties of wine quality.
- Addressed data skewness and outliers through log transformation and Robust Scaling (Scikit-learn), and performed EDA into the relationships between chemical properties and quality ratings.

TECHNICAL SKILLS

Programming Languages: C++, Python, Java, SQL, R, HTML/CSS

Tools & Platforms: VS Code, GitHub, PostgreSQL, Anaconda, RStudio, Jupyter, Excel, Word, PowerPoint