Chengze "Cheng" Liu

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EDUCATION

University of Houston
Houston, TX
BS in Computer Science
Minor in Math
GPA 4.0
Aug 2023 – Dec 2025

KEY SKILLS

Technical Skills
Python • Sklearn • Pandas
Numpy • Jupyter • R
SQL • Javascript
C/C++
VS Code • Github • Azure

Relevant Coursework
Data Science
Machine Learning
Database Systems
Statistics
Software Design
Algorithms and Data Structures
Operating Systems

Language
Fluent in English and Chinese

ACADEMIC EXPERIENCE

Text Data Analysis   Aug 2025 – Dec 2025

- Collaborated with a team of three to analyze a DBLP dataset on computer science publications using Python. Important features include paper **title** (text) and paper **abstract** (text). Important responses include publishing **venue** (categorical).
- Applied preprocessing techniques such as TF-IDF to transform text data and PCA / t-SNE to reduce dimension. Performed exploratory data analysis with statistical methods and visualization techniques.
- Trained classifiers to predict **venue** of a paper based on its **title**, **abstract** and other features. Classifiers include KNN, decision tree, ensemble, neural network, etc.
- Applied clustering algorithms to investigate the research areas covered by major venues. Clustering algorithms include K-Means, DBSCAN, agglomerative clustering, etc.

Numerical Data Analysis   Jan 2024 – May 2025

- Collaborated with a team of four to analyze the Concrete Compressive Strength dataset using R for data preprocessing, analysis, and visualization.
- Applied statistical and machine learning methods, including linear regression and random forest with cross-validation, to identify key predictors of compressive strength.
- Evaluated and compared model performance, successfully optimizing predictive accuracy.

Web Design   Jan 2025 – May 2025

- Collaborated with a team of three to design, develop, and deploy an online form submission and approval system, following Agile development principles.
- Created intuitive interfaces for form submission and approval, enabling multi-level approval and enhancing user experience as submitter and approver.
- Implemented Microsoft OAuth for secure user authentication and enforced role-based access control to maintain proper permission levels.
- Automated PDF generation for approval forms to improve efficiency.
- Integrated partner team's Flask-based components into a Django–Flask hybrid API, reducing development time by 80% and improving modularity.
- Developed using Python, HTML, CSS, and JavaScript; managed relational databases with MySQL and PostgreSQL; automated document generation using Makefile and LaTeX; used Docker to streamline deployment and package management.

Game Art and Animation   Jan 2025 – May 2025

- Designed two original game characters with three distinct animations each using Clip Studio Paint and Unity.
- Created custom background art and game assets using 2-point perspective drawing to enhance the game environment.
- Programmed character functionality and seamlessly integrated animations using C# in Unity.