

# Serena Huang

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## EDUCATION

### Parkway Central High School

High School Diploma | GPA: 4.734/4.0 | ACT: 36/36 | SAT: 1560/1600

Chesterfield, MO

Expected May 2026

- Honors & Awards:** NCWIT Aspirations in Computing National Honorable Mention & Affiliate Winner, USACO Silver Division Competitor, National STEM Festival Finalist, 3x 1st Place Winner in the Congressional App Challenge, Girls Who Code Scholar

## RELEVANT EXPERIENCE

### NASA & UT Austin's Center for Space Research

Austin, TX

Aerospace Research Intern

May 2024 - Aug 2024

- Selected as 1 of 50 rising juniors in the nation for the STEM Enhancement in Earth Science (SEES) internship
- Used k-means clustering and cosine similarity (Python, NumPy) to classify lunar regolith composition, identifying optimal materials for in-situ resource utilization and supporting Artemis mission goals
- Processed NASA spectral datasets to model star distributions and temperature trends in Andromeda (Python, NumPy, Matplotlib)
- Authored a research proposal studying the effects of astronaut drugs on brain organoids in Zero-G on a parabolic flight
- Invited to present at American Geophysical Union 2024 Annual Meeting Bright STaRs program

### Ariel Premium Supply

St. Louis, MO

Software Engineer Intern

Jun 2023 - Aug 2023

- Trained an EfficientNet-based CNN in PyTorch on 10K+ trademark images from the USPTO's Trademark Status & Document Retrieval API using transfer learning for clustering and classification
- Integrated trained model into a React Native app with optical character recognition (OCR) to streamline visual search

Software Engineer Intern

Jun 2022 - Aug 2022

- Built a data pipeline using Selenium (Python) and Linux cron jobs to automatically scrape 600+ client records daily, eliminating 15+ hours per week of manual search time and saving \$12K+ annually in business costs
- Developed a spaCy-based NLP pipeline to redact sensitive information from PDFs, text, and images, improving legal compliance

## PROJECTS

### AI Hydrological Modeling Independent Research

[github.com/serenahuang225/transformer-hydro-model](https://github.com/serenahuang225/transformer-hydro-model)

- Developed Transformer models (PyTorch) and custom data loaders for rainfall prediction using CAMELS dataset (531 basins, 20-40 years, vegetation/topography/soil), achieving NSE=0.764 ("Very Good", outperforming LSTMs by 6%)
- Trained models on single- and multi-basin datasets to assess generalization, created relevant visualizations (Pandas, Matplotlib)
- Selected as a semifinalist in Academy of Science St. Louis K-12 Science Fair Honors Division

### Neural Style Transfer Web App

[github.com/serenahuang225/famous-painting-stylizer](https://github.com/serenahuang225/famous-painting-stylizer)

- Built style transfer system using PyTorch U-Net with residual layers and instance normalization, trained 5 custom CNN models
- Developed a Flask web app with interactive UI such as drag-and-drop image upload via HTML5 File API, client-side image preview with Canvas API before processing, and style selector using CSS-grid overlays with @media queries for responsiveness

### Mock Operating System in C++

- Engineered a mock OS filesystem as a static library implementing core operations (create/read/write/delete) using abstract base classes (AbstractFile) with concrete implementations (TextFile, ImageFile), built with CMake (include/lib separation)

### Data Pipeline Development

- Built Airflow/Snowflake pipelines with DAGs to scrape and process Reddit data, creating signal tables with SQL for analytics

### Lively: All-in-One Planner and Journal App | React Native, Express.js, JavaScript, Firebase, Figma

[bubblystudios.com/lively](https://bubblystudios.com/lively)

- Created Lively, a React Native/Firebase productivity app that allows users to connect with friends and create personalized calendars, to-do lists, and journal entries with real-time notifications and friend syncing
- Placed 1st in the 2023 Congressional App Challenge, achieving 800+ iOS app downloads and 10K+ monthly interactions

## LEADERSHIP & EXTRACURRICULARS

### Stanford University

Stanford, CA (Remote)

Code in Place Program Section Leader

April 2025 - Present

- Selected from a competitive pool to teach Stanford's CS106A and Python fundamentals to a global cohort of 20K learners
- Led discussion sections, provided code feedback, and supported students in 1:1 to learn programming and problem-solving

### Parkway Central High Speech & Debate Team

Chesterfield, MO

Team Captain, Varsity LD Debater & Oratory Speaker

Aug 2022 - Present

- Coordinated a round-robin tournament with 350+ participants across the Greater St. Louis area with a team of 8 other students
- Conducted in-depth research on the moral and philosophical implications of various policy issues to prepare for competitive debates, and coached a team of 10+ students through rigorous weekly practices

## TECHNICAL SKILLS & CERTIFICATIONS

**Languages:** Python, Java, C++, R, SQL, JavaScript, Swift, C, HTML/CSS

**Frameworks & Technologies:** PyTorch, TensorFlow, Scikit-Learn, Keras, Pandas, NumPy, Matplotlib, Seaborn, React, Tableau, Git

**Certifications:** Machine Learning & Intro to Statistical Learning (Stanford Online), CS50's Intro to Computer Science (HarvardX)