

JULIA LIU

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA May 2025
Bachelor of Science in Information Systems and Human-Computer Interaction GPA: 4.0

EXPERIENCE

Data Visualization and Human-Computer Interaction Research Internship May – August 2020
University of Maryland Human-Computer Interaction Laboratory

- Collaborated with 3 researchers to study view management challenges for mixed-reality data visualization
- Developed technique combining 2D/3D views to improve data interpretation; implemented with ThreeJS
- Sped up user task completion time by 50%; increased perfect data interpretation by 250%
- Co-authored research manuscript, submission to IEEE TVCG journal pending review

Instructor – Mathematics, Programming, Test Preparation October 2018 – Present
Mathnasium Gaithersburg

- Instructed students of varying ages (6 - 20+) and math levels (basic math - Calculus 2) based on individualized learning plans
- Developed introductory Python programming course with around 10 hours of instructional content in response to parent interest; piloted August 2020 via Zoom
- Helped expand offerings to non-math subjects, such as programming, history, and AP exam preparation

PROJECTS

Job Assignment Web Application – Software Analyst

- Developed scalable algorithm with 3 teammates to automate daily assignment of jobs at summer camp
- Conducted thorough analysis of client organization's needs to determine detailed software requirements
- Designed and implemented front-end interfaces for around 15 webpages with HTML, CSS, and JS
- Created comprehensive set of technical documents for planning, analysis, testing, and deployment phases

Assistive Technology Design Project – Team Leader

- Organized student team to engineer portable cleaning device for janitorial worker with disabilities
- Constructed multiple prototypes; used iterative, user-centric design process to meet evolving user needs
- Allowed client to clean 8.5ft tall window by eliminating back pain, increasing surface coverage by 450%

Collaborative Weather Balloon Launch – Logistics Team Member

- Deployed high-altitude research balloon to study atmospheric gas composition and high-altitude radiation
- Calculated approximate flight path, descent speed, duration, and other information based on known data
- Researched regulations and guidance; coordinated with other teams to ensure flight safety and legality

Web Development Project: Pamela's Diner

- Designed and implemented website concept for local diner with HTML, CSS, and JS
- Conducted requirements analysis and user-testing using Think Aloud user-testing protocol

World War II Simulation Game

- Created simple web-application port of history teacher's educational game with ReactJS
- Gameplay evolves based on chance and player choice; teaches about tactics used by different countries

SKILLS

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- **Programming:** *Python, Java, HTML, CSS, JavaScript* - Familiar with Google App Script, C++, Dart
 - **Software:** *Microsoft Office, Microsoft Excel, STELLA, Multimedia Logic, Clip Studio Paint* - Familiar with Mathematica, Inventor, Photoshop, Inkscape
 - **Other:** Fluent in English and Mandarin; experienced communicator and technical writer; self-taught digital artist, animator, and designer; detail-oriented and accountable