

Katherine Clark
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EDUCATION

The University of Texas at Austin, Austin, Texas (Fall 2020 – Spring 2025)

Earned BS/MS in Computer Science Five-Year Integrated Master's Program (May 2025)

Concentration in Computer Graphics and Human-Computer Interaction

Master of Science Thesis Advisor: Dr. Amy Pavel

Earned Bachelor of Arts in Art History (May 2024)

PUBLICATIONS

- Katherine Clark and Amy Pavel. 2025. Simultaneously Generating Multiple Mediums of Tactile Graphics. In The 27th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '25), October 26–29, 2025, Denver, CO, USA. ACM, New York, NY, USA, 8 pages.
<https://doi.org/10.1145/3663547.3759718>
- Clark, K. (2025). *Authoring and Assessing Automatically Generated Tactile Graphics* (Master's Thesis).
<https://doi.org/10.26153/tsw/61134>

EXPERIENCE

NASA STEM Internship: Graphics and Visualization (GVIS) Lab XR Intern (Summer 2025)

- Developed various virtual reality experiences in Unity for in public outreach and internal events
- Created an educational, interactive VR experience of the High-Efficiency Megawatt Motor (HEMM), integrating magnetic field data with Unity C# and MiddleVR for CAVE applications
- Created an interactive, physically-based fluid and icing simulation, demonstrating the Adaptive Icing Tunnel (AIT) in Unity C# with versions for CAVE (MiddleVR) and Meta Quest (Meta XR) applications
- Programmed stereoscopic camera animations in Unity to produce 3D demo reels of the HEMM and AIT
- Volunteered and demonstrated VR projects at various internal NASA showcases and public outreach events in the Cleveland community
- Wrote detailed documentation within each project's GitLab repository for potential future development

NASA STEM Internship: Heliophysics Division (HPD) Web Development Intern (Summer 2024)

- Attended regular meetings and trainings with the Space Weather team and the Heliophysics Department
- Designed and implemented a website for HPD's new Centers of Excellence initiative, including a splash page and individual pages for each center: <https://science.nasa.gov/space-weather-centers-of-excellence/>
- Composed technical web copy for all four webpages
- Led strategy meetings with representatives from each center to discuss their respective goals and communicated best practices for the team's continued maintenance of the new pages

Physical Simulation Final Project: Smoothed Particle Hydrodynamics (April 2024-May 2024)

- Programmed fluid simulation using Smoothed Particle Hydrodynamics (SPH) in Unity C# for final project
- Implemented interactive components, like scalable container size and particle size, gravity, coefficients for liquid behavior (compressibility, density, and viscosity), and mouse interaction radius
- Created an interactable GUI to showcase the fluid simulation, allowing users to change parameters and "scoop" liquid by clicking and dragging with the mouse

NASA STEM Internship: Information, Data, and Analytics (IDAS) Web Development Intern (Summer 2023)

- Attended regular meetings and trainings with the Business and Service Management, Scientific and Technical Information, and Data Science teams
- Created an automated email reminder workflow using Microsoft Power Automate and SharePoint to promote frequent updates to the Operations Daily Stand-Up Tracker
- Built an interim customer intake form solution to be used by all IDAS service areas to accept service requests and incident reports via Microsoft forms, organized requests using Power Automate flows in conjunction with SharePoint lists, and provided an avenue for future organization insights with Power BI
- Wrote in-depth documentation for both projects, including data dictionaries and step-by-step walkthroughs

Computer Graphics Final Project: "Impressive Impressionism" (April 2023)

- Programmed a set of vertex and fragment shaders with a team of three programmers to create a 3D walkable scene with the appearance of being inside a painting using Unity
- Implemented fragment shader to control ranges of color hue and saturation
- Collaborated on implementation of Kuwahara filtering and edge detection

Interactive Database (IDB) Software Engineering Term Project: “Queue” (August 2022-December 2022)

- Worked with a team of five students to create a database website featuring playlists, locations, and songs
- Set up necessary webtools including AWS, Cloudflare, AWS Amplify and RDS services, and Dockerfiles
- Led work on the front-end including sorting and filtering implementation and website navigation
- Designed the graphics and implemented the frontend components using React-Bootstrap, HTML, and CSS
- Wrote tests of both front and backend implementation using Jest, Pytest, and Postman
- Created visualizations of interesting data connections using React’s Recharts library

The University of Texas’ Freshman Research Initiative and Summer Fellowship (January 2021-August 2021)

- Assisted with studying the distribution of galaxies and clusters of galaxies using algorithms developed in computational geometry and applying techniques in data analytics
- Obtained galaxy data from the Hobby Eberly Telescope Dark Energy Experiment (HETDEX), the Sloan Digital Sky Survey (SDSS), and the NASA Extragalactic Database (NED)
- Awarded FRI Summer Fellowship to continue research on behalf of Dr. Shyamal Mitra

RELEVANT COURSEWORK

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|-------------------------------------|-------------------------------|----------------------------------|
| • Algorithms: Techniques and Theory | • Human-Computer Interaction | • Software Engineering |
| • Physical Simulation | • Visual Design | • Principles of Machine Learning |
| • Game Technology | • Object Oriented Programming | • UX Prototyping |
| • Computer Graphics | | |

COMPUTER SKILLS

- | | | |
|-------------------------|-----------------------|----------------------------|
| • Java | • Python | • Unity |
| • C | • Git | • Microsoft Power Automate |
| • C++ | • Jupyter Notebooks | • Microsoft SharePoint |
| • C# | • Amazon Web Services | • WordPress |
| • HTML/CSS | • React-Bootstrap | • Blender |
| • JavaScript/TypeScript | • Unreal Engine | |

OTHER WORK EXPERIENCE**Wier Commercial Construction Contract Graphic Designer (Fall 2020 – Present)**

- Developed graphic design artwork for social media posts on Facebook, Instagram, and LinkedIn
- Created and formatted all graphics for a direct-mail piece to be sent to prospective clients
- Executed miscellaneous graphic design projects as requested

LEADERSHIP & HONORS/AFFILIATIONS

- The University of Texas’ Gymnastics Team Member (former Vice President and Treasurer), Texas Gymnastics Conference of the National Association of Intercollegiate Gymnastics Clubs (NAIGC)
- The University of Texas’ Freshman Research Initiative Summer Fellowship Award Recipient
- The University of Texas’ Women in Computer Science (WiCS) Member
- Girl Scouts Gold Award Recipient, San Jacinto Council, Troop #14525
- Texas “Bluebonnet” Girls State Delegate