

Alexandra J. Marx

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Ann Arbor, MI, USA (Willing to relocate)

LinkedIn: linkedin.com/in/alexandra-marx-85622a242

GitHub: github.com/AjjMarx

Blog and Portfolio: ajjmarx.github.io/

Education:

University of Michigan, Ann Arbor, MI (Jan. 2025 – Dec. 2027 Expected)

- BS Computer Science
- BS Mathematics: Mathematical Sciences (Biology)
- Fall 2025 GPA: 3.5, Cumulative GPA: 2.8

Washtenaw Community College (Sept. 2022 – Dec. 2024 Transfer)

- GPA: 3.7, Dean's list (2024)

Experience:

Software Eng. Research: Undergraduate Research Opportunity Program (Sept. 2025 – Present):

- *Reinventing Programming in Social Studies, Mathematics, and Language Arts Classes*
- Principal Investigator: Prof. Mark Guzdial, Director of COMPFOR at Michigan
- Role: Developing a **Graph Theory Educational Programming Language** for use in schools.
 - > Engineered native JavaScript code to generate and execute drag-and-drop SVG programming blocks.
 - > Developed WebGL graphics pipeline and equations to render interactive 3D textured globe.
 - > Documented research process for locating entry points for lessons and ideal pedagogy in design.

Code: github.com/AjjMarx/TeaspoonGraph, interactive Demo: ajjmarx.github.io/TeaspoonGraph/

Course Research: Lab of Geometry at Michigan (LOG(M), MATH 440) (Jan. 2026 – Present):

- *Exploring Domains of Discontinuity in \mathbb{R}^3*
- Faculty Advisors: Alejandro Bravo-Doddoli, Neza Zager Korenjak
- Team-based computational mathematics research into dynamics of 3D linear transformations.

Volunteer: Girls in Electrical Engineering and Computer Science (Sept. 2025 – Present)

- Collaboratively designed and taught a lesson in introductory computer science to several groups of 40-50, mostly female, elementary and middle school students.

Volunteer: Math Corps Tutoring (University of Michigan) (Nov. 2025 – Present)

- Weekly mathematics tutoring for middle school students at Ypsilanti Community Middle School.

Employment: Food Service (Multiple Roles) (2022, 2024 – 2025)

- Prepared food in a high stress, hierarchical, and diverse environments. Maintained a clean kitchen.

Additional Projects:

Personal Site/Tech Blog: (Sept. 2025 – Present)

- Single page application (SPA) written in HTML5, JavaScript, and CSS.
- Engineered animated webpage transitions between any two pages while preserving URLs.
- Developed abstraction layer to define safe, aesthetically pleasing, webpages with JSON.

Code Repository: github.com/AjjMarx/ajjmarx.github.io

3Blue1Brown Summer of Math Exposition #2: Math Explainer Competition (SoME2):

- Wrote, voiced, and animated 25-minute 3D animated video in Blender explaining intuitive geometric principles behind Voronoi Diagrams and Fortune's Algorithm.
- Programmed automated processes for rendering complex concepts with then-new Geometry Nodes.
- Achieved >11,000 Views and over 600 likes, YouTube: https://youtu.be/L_joQb12QSE

3-Dimensional Polyhedral & Developable Surface Paper Art (Published):

- Designed and translated numerous complex, artistic, 3D models into respective flat 2D un-foldings to fit within hardware constraints and be easily re-folded into original designs.
- Seen by over 240,000 users, generated over \$11,000 in ad revenue.

Skills:

Programming: C++ | JavaScript | Lua | Python | HTML/CSS | WebGL | GLSL | Unix Command Line

Computer Science: Algorithms | Data structures | Graphics | Unit & Integration testing

Applied Math: Linear Algebra | Differential Equations | Discrete Math | Numerical methods

Pure Math: Real analysis | Abstract Algebra | Dynamics & Recursion | Mathematical Origami

Human Language: Mandarin Chinese (Simplified) (HSK 4 equivalent) (B1, Basic Fluency)

Dev. Software: GitHub | Bash | Zsh | Vim | Valgrind | Secure Shell (SSH) | L^AT_EX (LaTeX)

Other Software: Blender | Fusion 360 | ArcGIS | Adobe Suite | Office Suite | Google Suite

Digital Design: Vector Graphics | Shaders | Tikz | 3D Paper Crafts | 3D Printing | Pixel Art