

# Sam Williams

(703) 244-7802 | samhw6@gmail.com | <https://smwllms.github.io/> | Alexandria, VA, Open to relocation

## EDUCATION & ORGANIZATIONS

- **B.S. in Computer Science | Virginia Tech '22**
  - Summa cum laude
  - Phi Beta Kappa Academic Honor Society
- **Galileo LLC | Virginia Tech | 2019-2020**
  - Organization for engineers offering professional development, educational and service opportunities
- **M.S. in Computer Science | Virginia Tech '23**
  - Thesis: "Exploring the Usability of Non-verbal Vocal Interaction (NVVI) and a Pitch Based Implementation"
- **Up & Up | Virginia Tech | 2023**
  - Music event scheduling and hosting, community outreach, and sound equipment

## WORK EXPERIENCE

### STEM+ | Alexandria, VA | 2020 – 2022

- *Front-end Developer* - Designed and maintained company website. Worked in Wordpress, JavaScript, CSS, PHP, SQL.
- *Education* - Developed computer science and programming educational content, e.g., web modules and tutorial videos.
- *Extended Reality Designer and Developer* - Created virtual environments for Mozilla Hubs in Blender and Mozilla Spoke. Supervised and aided in troubleshooting clients' social/educational events in Mozilla Hubs.

### Virginia Tech Libraries | Blacksburg, VA | 2021

- *Virtual Reality (VR) Software Developer*. Designed a 3D virtual reality environment to visualize 3D animal anatomy for classroom use, implemented for both the Oculus Quest and web browsers. Translated Figma UI design into interactive GUI components.

### Virginia Tech | Blacksburg, VA | 2023 – 2024

- *Instructor for Intro to GUI* (Spring 2024). Taught a junior-level elective on topics including GUIs, model-view controller, React, D3, computer graphics, and full (MERN) stack development.
- *Teaching Assistant for Intro to Computer Organization* (basics of systems and C programming language) and *Intro to GUI*.

### Research & Publications | Virginia Tech | Blacksburg, VA | 2019 –

- *A Relative Pitch Based Approach to Non-verbal Vocal Interaction as a Continuous and One-Dimensional Controller*
  - To be presented & appear at HCII 2024
- *An Approach to Pitch Based Implementation of Non-verbal Vocal Interaction (NVVI)*
  - Presented at IEEE VR (NIDIT Workshop) 2024
- *Immersive Technology in the Public School Classroom: When a Class Meets*
  - Presented at iLRN 2021 (Virtual)
- *Redefining the Digital Paradigm for Virtual Museums*
  - LNISA 2021

## PROJECTS

### Online Applications, Visualizations and Environments (available on my website)

- **Fourier Transform Calculator and Analysis Tool** for calculations and visualizations.
- **Audio Plugin Development Workstation** for quick prototyping of audio plugins.
- **x86 ASM Sandbox and Debugger** providing the capabilities to visualize and manipulate the stack and memory of an Intel IA-32 ASM program.
- **Image Convolution Sandbox** – perform convolutions like blurring and edge detection on any image with custom kernels.

**Virtual Studio Technology (VST) Development** of audio plugins for digital audio workstations.

## SKILLS AND TECHNICAL BACKGROUND

- C, C++, C#, Java, JavaScript, Python, X86 ASM, SQL
- Web Development, GUI, DOM, HTML, CSS, React, D3
- Unity3D, Three.js, WebGL, OpenGL, Figma, Cloud Computing
- User Experience (UX), User Interfaces (UI), Human-Computer Interaction (HCI)
- Software Engineering Design Patterns, Model-View-Controller, Modularity, APIs
- Visual Studio, VSCode, Git/Github, Microsoft Excel
- Audio Signal Processing, DSP, Sound Acoustics
- Agile Development, Sprints, Communication