Sam Williams

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EDUCATION

Virginia Tech, Blacksburg, VA

Master of Science, Computer Science   December 2023

Thesis: *"Exploring the Usability of Non-verbal Vocal Interaction (NVVI) and a Pitch Based Implementation"*

Bachelor of Science, Computer Science (summa cum laude)   December 2022

Galileo LLC - Professional development, educational and service organization

Up & Up – Music event hosting, community outreach, sound equipment management

EXPERIENCE

Virginia Tech, Blacksburg, VA   January 2023 – May 2024

Instructor of Record (Intro to GUI)

Taught a junior-level elective on topics including GUIs, model-view controller, React, D3, computer graphics, and full (MERN) stack development.

Teaching Assistant (Intro to Computer Organization, Intro to GUI)

STEMPLUS, Alexandria, VA   May 2020 – December 2022

Front-end Developer

Designed and maintained company website, including custom HTML, JS, CSS and WordPress Plugins.

Virtual Reality (VR) Developer

Created virtual environments for Mozilla Hubs in Blender, Mozilla Spoke, and Unity3D. Supervised and aided in troubleshooting clients' social/educational events in Mozilla Hubs.

Virginia Tech Libraries, Blacksburg, VA   May 2021 – August 2021

Virtual Reality (VR) 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.

RESEARCH & PUBLICATIONS

Distributed Virtual Environments (DVE) Lab, Virginia Tech   January 2020 – May 2024

- *A Relative Pitch Based Approach to Non-verbal Vocal Interaction as a Continuous and One-Dimensional Controller* (HCII 2024)
- *An Approach to Pitch Based Implementation of Non-verbal Vocal Interaction* (NIDIT Workshop, IEEE VR 2024)
- *Immersive Technology in the Public School Classroom: When a Class Meets* (iLRN 2021)

PROJECTS (available on my website)

Mepository – Web-based virtual journal for recording and grouping entries based on days, weeks and months.

Audio Plugin Sandbox – Quickly prototype audio plugins in a web-based sandbox environment.

X86 ASM Sandbox/Debugger – Debug assembly programs with breakpoints and stack and memory visualizations.

Fourier Transform Calculator and Analysis – Visualize audio analysis in real-time and perform DFT and FFT calculations.

Image Convolution Sandbox- Perform image convolutions with custom kernels, like blurring and edge detection.

SKILLS

Programming Languages – (Proficient) JavaScript, C, C++, C#, Python, SQL (Familiar) Java, Rust, x86 ASM, PHP

Web Technologies – HTML/JS/CSS/DOM, React, Angular, MongoDB, Node.js, D3, WebGL, Three.js, REST APIs

SWE and HCI Practices – UX, UI, MVC, Agile, Modularity, Communication, Sprints, Version Control (Git, Github)

Others: Unity3D, Audio Signal Processing, DSP, Web Scraping