Alex Tomjack

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Education

University of Nebraska-Omaha
Master of Science in Computer Science — *Expected Graduation: May 2026*

University of North Texas — GPA: 3.97
Bachelor of Science in Computer Science — *Expected Graduation: May 2024*
Relevant Coursework: Internet Programming, Fundamentals of Database Systems, Software Engineering, Data Structures & Algorithms, Principles of Systems Programming, Advanced Technical Communication

Technical Skills

Languages: C/C++, JavaScript, TypeScript, Python, Bash, SQL, HTML/CSS
Frameworks: React, Node.js, Next.js
Software: Git, Docker, Visual Studio, Linux, MS Office

Experience

Undergraduate Research Assistant — Aug. 2023 - Present
University of North Texas — *Denton, TX*

- Implemented new functionalities for flexible configuration file parsing to a large existing C++ codebase.
- Fixed dozens of existing problems in the project's Bash-based build system upon receiving non-working code.
- Deployed the project to HPC servers using Docker.

Projects

Subtitle Display Utility — May 2024 - Aug. 2024

- Built a desktop program that allows developers to easily display subtitles in their own apps with JSON.
- Created a seamless user experience by using OpenGL to create invisible, borderless windows, making it seem as though the subtitles are not being drawn by a separate program.
- Designed a JSON API and created a TCP server that makes sending subtitles to the Utility both simple and powerful, with the ability to customize all properties of the subtitles, but also providing sensible default values.

Spout Effects — May 2024 - Aug. 2024

- Created a program which acts as a video effects pipeline, taking in a video source, applying post-processing effects, and outputting it as a video source usable in the OBS streaming software.
- Enhanced existing ASCII effects by adding directional edge detection, allowing the program to use solid lines to separate objects which would otherwise blend together.
- Optimized the receiving and sending of video by implementing Spout2, a technology which allows the sharing of textures directly on the GPU.

Algorithm Visualizer — Aug. 2022 - Dec. 2022

- Built an interactive website using JavaScript that allows users to learn algorithms visually using animations.
- Implemented animations for pathfinding, searching, and sorting algorithms with CSS animations using the GSAP library.
- Organized the development using Agile methodology and the software development life cycle, adhering to weekly sprints and monthly releases.

Honors

National Merit Scholar — 2020 - 2024

President's List — Fall 2020 - Spring 2024