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 — *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 - May 2024
University of North Texas — *Denton, TX*
- Implemented a flexible configuration file system for a large existing C++ project, a heterogeneous chip simulator.
- Identified and fixed dozens of existing bugs in the project's Bash build system upon receiving non-working code.
- Created a Docker container and deployed the project to HPC servers for use in research.

PROJECTS

Higher or Lower — Aug. 2024 - Sept. 2024
- Used NextJS to build an interactive web game where users select which Steam game has more current players online, with data sourced from Steam's store API and updated daily.
- Migrated an existing React codebase to server-side rendering to reduce client-side Javascript and improve load times and performance.
- Implemented a SQLite database to store game data, user accounts, and high scores.

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 an 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 while 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 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