Tobin Cavanaugh

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Skills:

Hard Skills		**Certifications**
• C Programming • Out of the box & critical thinking • C#, C++, Rust, Python, Java, JavaScript • Unity & Raylib game development	• Debugging • Ambitious learner • Self motivated	• Unity Developer Certified

Experience:

Software Engineer Internship

Electroimpact Mukilteo, WA Summer 2024 & Summer 2023

- Engineered a full GUI application for precision controlling and measuring with high-end laser trackers.
- Solved laser tracker stand resonance by reprogramming the motor, saving tens of thousands in laser tracker stand replacements.
- Installed a Foundation Reference System (FRS) and performed laser tracker accuracy validation. Validated multiple laser trackers for Electroimpact and customers, including Boeing, resulting in saving of ten thousand dollars for a new tracker.
- Acquired training in Metrolog X4 and robotic arm simulation across numerous training sessions.
- Designed robot pathing for safely 3D scanning objects using the Creaform Metrascan Black Elite mounted on the KUKA LBR iiwa robot arm.
- Used heavy power tools on numerous projects, including drilling stainless steel, concrete, and constructing wood frames.

Personal Projects:

sstr.h – “Stack Strings” C library

Programming Library Bismarck, ND & Seattle, WA Summer 2024

- Created sstr.h, a high-performance novel implementation string modification library for C, innovating on C string manipulation.
- Implemented a previously considered impossible concept that improves performance, memory usage, and safety. sstr.h results in 2x faster execution and decreasing the chances of crashes and memory leaks by a factor of ten.

Fstr – “Fancy Strings” C library

Programming Library Bismarck, ND Summer 2024

- Created fstr, a high performance and safe string library for C making use of a novel string architecture. This method invalidates the most common programming security exploits responsible for billions of dollars of losses.
- Allowed programmers to use C strings in a safer way, performing complex functionality quickly, conveniently, and without concerns about crashes.
- Wrote more than 64 functions for manipulating and modifying strings, totaling over 1400 lines of tested code.
- Handmade beautiful and functional web documentation, used by many to learn the library.

Upon The Wind

Video Game Seattle, WA Spring 2023

- Developed procedural generation tooling in order to create a fully-fledged game in Unity using object oriented programming.
- 3D modeled and textured 25+ aesthetically pleasing art assets and animations using Blender, resulting in a beautiful and highly performant game that stays at a constant 60fps.
- Designed a cohesive, Ghibli-like art style and nine unique environments using the URP render pipeline and post processing library.

Education:

Bachelor of Computer Science University Of Mary Bismarck, North Dakota Expected Graduation: April 2027