Maxwell James Beck

824 Williamson St. #206, Madison, WI 53703
815-575-5782
max@rastertail.net

Education

Computer Sciences, B.S.; Mathematics, Certificate
University of Wisconsin-Madison   2021–2025

Coursework
- Computer Graphics
- Modern Algebra
- Scientific Writing

Experience

Embedded Software Engineer
Extreme Engineering Solutions – Verona, WI   2023–Present
- Collaborated with focus teams to resolve show-stopper bugs in UEFI firmware
- Designed firmware for internal development hardware
- Demonstrated proof-of-concept 25% reduction in UEFI boot time via numerous optimizations

Software Engineer
Stuttgart Inc. – Crystal Lake, IL   May–July 2022
- Maintained various existing C and Python codebases
- Led C++ software development for upcoming products
- Resolved Linux device tree issues with Variscite SOM-based hardware

Engineering Services Technician
Stryker Sage – Cary, IL   June–August 2021
- Redesigned product test fixture for measuring liquid absorption using Raspberry Pi
- Performed test procedures on products slated for limited launch

Projects

Digichrome
Intuitive RAW photo processing engine
- Implemented Zhang-Wu LMMSE demosaicing and various tonemapping algorithms
- Utilized wgpu in Rust for high-performance GPU rendering

pico1541
Raspberry Pi Pico-based Commodore 1541 emulator
- Programmed realtime cycle-accurate hardware emulation in C
- Tested against synthetic 6502 test suites, as well as real Commodore hardware

Moss VCF
Fully analog reimplementation of the MOS 6581's VCF
- Selected modern MOSFET devices to replicate vintage NMOS circuits
- Simulated various designs to guide component selection

Skills

Programming Languages: C, C++, Python, Rust, Java, TypeScript, Assembly
Frameworks/Libraries: EDK2, NumPy, scikit-learn, WebGPU
Tools: Linux, Git, Docker, Nix, KiCAD, LTSpice