

Maxwell James Beck

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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
- Analyzed mechanical test data using Microsoft Excel

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
- Distributed for Windows, macOS, and Linux

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
- Selected low-cost components for prototyping

Moss VCF

Fully analog reimplement of the MOS 6581's VCF

- Selected modern MOSFET devices to replicate vintage NMOS circuits
- Simulated various designs in LTSpice to guide component selection
- Designed schematics and PCB in KiCAD

Skills

Programming Languages: C, C++, Python, Rust, Java, TypeScript, Assembly

Frameworks/Libraries: EDK2, NumPy, scikit-learn, WebGPU

Tools: Linux, Git, Docker, Nix, KiCAD, LTSpice