Kaden Berger

kadenaberger@gmail.com | https://kadenberger.weebly.com | 847-313-9024

Education

Iowa State University – BS in Computer Engineering Expected May 2026

- **GPA:** 3.60

Experience

Software Engineering Intern, Parametric Studio Inc – Ames, IA May 2025 – Present

- Developed interactive STEM learning simulations in Unity (C#) to teach physics and engineering concepts to K-12 students
- Integrated Arduino Leonardo hardware with a WeBGL Unity simulation using JavaScript, enabling bidirectional data exchange between physical devices and browser-based software
- Designed and assembled a wearable hardware interface using an Arduino and flex sensors to translate physical hand motion into real-time input for virtual lab simulations

Undergraduate Research Assistant, Iowa State University – Ames, IA Jan 2023 – Present

- Processed electromyography (EMG) signals using an Arduino microcontroller to actuate 3D-printed prosthetic hands
- Developed a brain-controlled rover using EMOTIV EEG headsets and signal processing for directional navigation
- Contributed technical designs and prototype results to a grant proposal that won a NASA Space Consortium research grant

Desk Assistant, Iowa State University – Ames, IA Aug 2023 – Present

- Managed front desk operations for a residential community, handling mail distribution, key access, and resident inquiries

Projects

Adaptive Trail Navigation Smart Glasses https://sdmay26-34.sd.ece.iastate.edu/

- Collaborated to design an assistive navigation system for BAE Systems using stereo depth vision and OpenCV processing to detect obstacles for visually impaired hikers
- Developed a solution with clients to combine a visual processing pipeline with haptic and bone-conduction audio using C++ on a Raspberry Pi to provide user feedback

Quake II on Embedded Linux

- Worked with a team to port Quake II to an embedded PetaLinux environment on a Zynq-7000 FPGA, enabling a legacy 3D game engine to run on ARM Linux without GPU acceleration
- Integrated a custom VGA video pipeline with a Linux device tree configuration to expose a DMA framebuffer for graphics output
- Interfaced video pipeline framebuffer with SDL2 graphics rendering to allow software-based graphics output on embedded hardware

Skills

Programming: C, Java, C#
Hardware Design Languages: Verilog, VHDL
Embedded & Hardware: Xilinx Zynq-7000 FPGA, Arm Cortex-M4, Arduino, Raspberry Pi, Petalinux, Yocto, 3D Printing
Software: Vitis, Vivado, Quartus, Modelsim, Linux, Android Studio, MySQL, Unity, OnShape