Evan Shu Kahn

I am a versatile engineer with a generalist background and broad base of experience. I enjoy building hardware and software to find joyful solutions to challenging and unusual problems.

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WORK EXPERIENCE

Creative Technologist
10XBeta, LLC

10/2021 - Present — *Brooklyn, NY*
Turnkey rapid hardware product development.

- Ongoing client projects: developing firmware for several medtech prototypes (nRF52 + FreeRTOS) integrating multiple sensors; BLE support; BMS. Work directly with HW engineers on system design and component choice, PCB assembly and debug.
- Client project for ad agency: Captain Morgan Super Bowl Punch Bowl. Developed firmware, frontend and backend; advised on PCB design and system architecture; assisted with board and mechanical assembly; provided on-site technical support.

Software Architect
Looking Glass Factory

09/2017 - 05/2021 — *Brooklyn, NY*
Affordable desktop holographic displays.

- Lead developer of firmware and embedded Linux image for second-gen flagship 3D display: Looking Glass Portrait. Also performed R&D, systems design work, and initial scoping of UX and feature set.
- Designed and developed Holoplay Service and Holoplay Core: low-level software platform and API that provide a direct interface between the Looking Glass hardware and user-facing tools.
- Built camera control hardware for multi-view lightfield capture; wrote software interface to aggregate captured images into 3D image and display in real time via Looking Glass; developed and refined practical methodology for capturing 3D multiview images.
- Periodically visited Hong Kong and Shenzhen to transfer knowledge between hardware and software teams; developed understanding of overseas manufacturing, hardware R&D, supply chains, and QA.
- Responsible for US office makerspace upkeep: used and maintained 3D printers, laser cutter, and other tools.

Software Engineering Intern
Applied Minds

06/2016 - 08/2016 — *Burbank, CA*
Cross-disciplinary advanced technology development and design.

- Worked on augmented reality prototype using i.MX6 embedded system and Yocto Linux; brought up new sensors in STM32 coprocessor firmware.

EDUCATION

B.S. Engineering
Harvey Mudd College

08/2013 - 05/2017 — *Claremont, CA*

- Intro to Engineering Design and Manufacturing
- Data Structures and Program Development
- Analog Circuit Design
- Digital Electronics → Microprocessor Systems → CMOS VLSI Design
- Engineering Clinic (see 'Selected Projects')
- Mudd Makerspace President (Extracurricular)

TECHNICAL SKILLS

Firmware - nRF52 / STM32 / AVR / ESP32
Unix - shell scripts / servers
Git
Embedded Linux - Raspberry Pi and others
PCB design - KiCAD / Altium
PCB assembly
PCB rework / microsoldering
C# / Unity
Native development - C / C++, CMake
Frontend / Backend (ad hoc, usually node.js)
CAD / 3D Printing / rapid prototyping

SELECTED PROJECTS

Airbreak (04/2020)
- Worked on small team to repurpose ResMed CPAP machines as inexpensive emergency ventilators for COVID-19 rapid response.
- Analyzed CPAP firmware and modified using Ghidra in order to raise static pressure limits and enable biphasic ventilation.
- Worked with doctors to validate that results were useful.
- Featured on Ars Technica.

JoyconLib (09/2017)
- (For Looking Glass Factory.)
- Published a widely-used plugin to make the Nintendo Switch Joy-Con controller compatible with the Unity3D game engine, shortly after the console's release and before native support became available.

Engineering Clinic - Kaiam Corporation (09/2016 - 05/2017)
- Senior capstone project at Harvey Mudd College.
- Designed new processes and hardware to enable Kaiam, a silicon photonics manufacturer, to streamline burn-in and QA processes for optical transceivers; presented them to company executives and built prototypes.
- Project covered MEMS design/fabrication; mixed A/D circuit design; physical and thermal modeling; technical writing; firmware and software development.

CMOS Game of Life (03/2016 - 04/2017)
- Final project for CMOS VLSI Design course.
- Used Altera and Cadence tools to model, design, fabricate, and test an integrated circuit and carrier PCB to play Conway's Game of Life.

yapg (12/2015)
- Final project for Microprocessor Systems course.
- Built persistence-of-vision pixel globe using a Raspberry Pi for LED control and Spartan IV FPGA for motor control.
- Featured in Linux User and Developer Magazine .