Dylan K. Garrett ***dylan.garrett@gmail.com***

Work Experience

Microsoft - Azure Sphere & CBL-Mariner, Redmond, WA

Principal Software Engineer — *Sep 2022 - Present*
Senior Software Engineer — *Sep 2019 - Sep 2022*
Software Engineer II — *Oct 2018 - Sep 2019*

Tech Lead - New Mariner Linux HCI Platform
- Technical lead of new 7-member team designing and kick-starting new hybrid-cloud hyperconverged infrastructure (HCI) platform based on Kubernetes and Mariner Linux

Tech Lead - Azure Sphere on NXP i.MX 8ULP-CS Bring-up Team
- Led 7-member multidisciplinary team that successfully completed initial Azure Sphere Gen2 platform bring-up on next-gen NXP SoC; owned boot flow, firmware (ARM Trusted Firmware-A, OP-TEE), OEM BSP integration, and exposing hardware capabilities to application VM
- Architected components, planned work, unblocked team members technically and organizationally, mentored junior team members, and regularly interfaced with management and Architecture team
- As an Individual Contributor, developed features spanning platform bring-up, virtualization peripheral passthrough, security, power, networking, and application platform. Drove consensus across hardware, kernel, OS, tooling, & external NXP teams

Azure Sphere Hardware Abstraction Layer (HAL) v2
- Designed key components of Azure Sphere's new Hardware Abstraction Layer, including device tree based hardware description, boot phases, and HAL event pattern
- Designed several HAL v2 driver models for secure enclave firmware and TrustZone Security Monitor. Included cryptography, secure boot, hardware firewall, and new flash model to support eMMC and remove dependency on eXecute In Place (XIP) flash
- Implemented and extended Linux peripheral drivers and kernel subsystems (PWM, USB ethernet, clocks) to adapt platform to chips with varied system RAM (4MB - 1GB+)

Microsoft - Xbox, Redmond, WA

Software Engineer II — *Mar 2016 - Oct 2018*
Software Engineer I — *Aug 2014 - Mar 2016*
- Built infrastructure in Game Bar Universal Windows Platform (UWP) app and Windows systems supporting our unique gaming-focused system UI
- Contributed to Windows Store updatability of the overlay shell for greater ship agility
- Developed Xbox console plug-in for Mixer Interactive Controller Sharing
- Owned Mixer Streaming plug-in on Xbox. Contributed to Xbox video capture system.
- Prototyped Mixer streaming on Android, leading to development of Mixer Create app
- Xbox One In-Home Game Streaming to Windows 10 - Low-latency streaming protocol

Patents

Link-time driver polymorphism for embedded systems (Microsoft) — *Filed 2021*
Low-latency mobile device audiovisual streaming (Microsoft) — *Granted 2019*
Control sharing for interactive experience (Microsoft) — *Filed 2018*

Personal Projects

KOReader - ebook reader (Open Source Contributor) — *2021-2022*
Score Tracker Apple Watch App — *2020*
birb. (Gameboy Game for Ludum Dare 45 Game Jam) — *2019*
Pocket Article E-Paper Reader — *2018*
Low-power Wearable Audio Necklace PCB — *2018*
Keeb (Custom mini keyboard PCB) — *2018*

Education

Georgia Institute of Technology, Atlanta, GA — *Grad. May 2014*
B.S. Computer Science (Focus: Devices, Platforms; Minor: Computing & Business)

Programming Skills

Languages: Modern C++, C, Python, Rust, Go, Swift, C#, Java, Ruby, JavaScript
Platforms: Linux, Yocto Project, ARM Trusted Firmware, OP-TEE, Kubernetes, Windows, Xbox One, iOS/WatchOS