AARON CLARKE

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Summary

Experienced Embedded Systems Engineer with expertise in product development, firmware engineering, and embedded systems. Proven track record in aerospace, defense, consumer electronics, and medical devices. Skilled in C/C++, Python, embedded Linux, and RTOS with a focus on delivering reliable, high-performance solutions.

Skills

Programming Languages: Assembly, C, C++, C#, Fortran, Matlab, Perl, PHP, Python.
Microprocessors: ARM, fixed point DSPs, i.MX, OMAP, PIC, PowerPC, PSoC, Zynq.
Operating Systems: FreeRTOS, Linux, MicroC/OS-II, PetaLinux, UNIX, VxWorks, Windows.
Technologies: Bitbake, Bluetooth, Board bring-up, bootloaders, Embedded Linux, GPIB, Ethernet, iSCSI, HID, network programming, MQTT, PXI, SLIP, TCP/IP, UDP, USB, VME, WDK, wireless communication modules, WHQL, Windows Logo Testing, Yocto.

Professional Experience

Private Aerospace Launch Vehicle Company (Startup)
Avionics Firmware Engineer (Consulting), July 2020-Present
• *Developed firmware to collect and transmit telemetry data from flight computer sensors, including pressure sensors, RTDs, and the flight termination system.*
• *Developed data acquisition software to rigorously test the flight computer and validate sensor* interfaces.
• *Used the software in the final qualification process to certify the flight computer for spaceflight.*
• *Contributed to the full lifecycle of the flight computer, from initial prototype development to the first vehicle launch.*
keywords: C++, Embedded Linux, nidaqmx, PetaLinux, Python, Telemetry.

Aaron Clarke, Lockport, NY
Embedded Systems Consultant, July 2007-Present
• *Engineered a Bluetooth interface for a new product for a medical device startup.*
• *Diagnosed issue with Ethernet ports on prototype ARM Embedded Linux system.*
• *Fixed issue with Ethernet PHY addressing by updating Linux kernel and drivers.*
• *Troubleshooting crash issue on newly developed Samsung ARM11 debian embedded system.*
• *Set up BeagleBone Black Eclipse development environment for new product under development.*
• *Developed Debian Linux-based OS and drivers on TI ARM Cortex-A8 DM3730 processor module.*
• *Customized linux device driver to support TFT LCD display with OMAP Display Subsystem (DSS) module.*
• *Developed Linux build system for Freescale i.MX ARM system for embedded hardware manufacturer.*
• *Added USB interface to WiFi product for manufacturer of embedded modules.*
• *Evaluated capacitive touchscreen product for Raspberry Pi, diagnosed I2C problem with logic analyzer.*
• *Ported STMicroelectronics USB device stack to ARM processor system running FreeRTOS .*
• *Updated Agricultural GPS product for new PIC18 microcontroller and GPS receiver chip.*
• *Developed firmware for wireless system using Semtech 433MHz transceivers and PIC18 microcontrollers.*

• *Ported the Microchip Graphics Library to a new grayscale LCD controller for a PIC24F product prototype.*
• *Delivered PIC display driver and customized graphics firmware on time to meet aggressive schedule.*
• *Debugged product firmware and rewrote an embedded USB Host stack to support common input devices.*
• *Customized the Microchip HID USB device bootloader for a Microchip PIC18F industrial product.*
• *Ported U-boot, Apex, and vivi bootloaders to bring up new ARM-based products.*
• *Created custom embedded Linux kernels for ARM processors.*
• *Developed custom JTAG configuration scripts for programming NAND flash for production.*
• *Created custom boot code to support products with only NAND flash NVRAM.*
• *Maintained embedded Linux builds and ported new features to wireless access point.*
• *Developed shell and PHP scripts to boot embedded Linux systems with custom configurations.*
• *Diagnosed packet processing and IP filtering issues with embedded Linux switch.*
• *Debugged setup and administration issues for embedded Linux system and Linux server.*
• *Integrated software modules and debugged hardware prototypes for resource constrained ARM7 system.*
• *Performed design reviews of schematics and layout for consumer electronic prototypes for two clients*
• *Tested EMC compliance of consumer electronic prototypes.*

Fisher-Price Inc., , East Aurora, NY
Project Engineer, November 2004-July 2007
• *Developed electronics for multiple consumer products.*
keywords: 8-bit, 32-bit, ARM7, C, HID, MIDI, PSOC, RTOS, USB, audio, contract manufacturer, codec, flash, signal processing, video.

ATTO Technology, Inc., Amherst, NY
Systems Engineer, August 2002-November 2004
• *Developed firmware for iSCSI storage switch.*
keywords: C, Ethernet, Linux, TCP/IP, UML, XScale, iSCSI, logic analyzer, network storage, IETF, RFC

Sierra Research, Buffalo, NY, now part of DRS Technologies, Inc.
Engineer, June 2001-August 2002
• *Developed VxWorks drivers and embedded software modules.*
keywords: C, C++, Ethernet, ICD, Linux, Matlab, Perl, PowerPC, RS-232, RS-422, SLIP, UDP/IP, VxWorks, bash, data-flow, gcc, serial

Amherst Systems, Inc., Buffalo, NY, now part of Northrop Grumman
Engineer, December 1997-January 1999
• *Contributed to a wide variety of embedded software projects supporting CEESIM development.*
keywords: Alpha, C, C++, GPIB, LabWindows CVI, RS-232, StrongARM, TCP/IP, UDP, VxWorks gcc, logic analyzer, parallel port

VoCAL Technologies, Ltd., Amherst, NY
DSP Engineer, February 1996-June 1997
• *Led team developing modem and fax firmware and hardware for Japanese client.*
keywords: 16-bit, C, DSP, Perl, VLIW, algorithm, fax, fixed-point, modem

Dynamics Research Corp., Tonawanda, NY
Computer Programmer, June 1995-February 1996
• *Awarded patent for work on data-acquisition system (U.S. Patent #5805464).*
keywords: BASIC, C, FFT, LabWindows CVI, balancing, data acquisition, real-time programming, vibration analysis

Education

B.S. Electrical Engineering, University at Buffalo, February 2000.
• *Developed audio signal compression system using psychoacoustics in Matlab.*
B.S. Mathematics, University at Buffalo, June 1995.
• *Concentration in Applied Mathematics.*
A.S. Engineering Science, Erie Community College, Williamsville, NY, June 1990.
• *Awarded Engineering Society of Buffalo scholarship.*