

JOSHUA DIXON

SOFTWARE & ARCHITECTURE ATLANTA, GA, UNITED STATES

◦ DETAILS ◦

Atlanta, GA, United States
joshuajdixon.jd@gmail.com

◦ LINKS ◦

[LinkedIn](#)

◦ SKILLS ◦

C Programming

C++ Programming

Python

Zigbee & Bluetooth

RTOS

CI/CD

Network & Serial Communication

Microcontrollers

Agile Software Development

Product Development

Leadership

👤 PROFILE

An experienced software engineer specializing on IoT and embedded systems. Skilled at designing software for real-time operating systems and firmware with wireless communication capabilities using C programming. Previous background and knowledge of digital hardware/RTL design. A self-motivated, independent learner who continues to hone problem-solving abilities and expand technical knowledge.

🎓 EDUCATION

Master of Science Electrical and Computer Engineering, University of Wisconsin - Milwaukee, Milwaukee, WI

August 2014 — August 2016

Bachelor of Science Computer Engineering, University of Central Florida, Orlando, FL

August 2008 — May 2012

💼 EMPLOYMENT HISTORY

Technical Leader at Cooper Lighting Solutions/Signify, Atlanta

May 2022 — Present

- Lead a team of 4+ engineers in the development of New Project Initiatives (NPI) that make use of Zigbee and Silicon Labs EFR32MG ARM microcontrollers
- Perform board bring-up activities for customized boards with MCUs, UART, SPI, I2C communication for various drivers and sensors
- Create and document memory architecture layouts to ensure non-volatile memory (NVM) and over-the-air (OTA) capability
- Design, plan, test, and deploy lighting control devices within system releases in collaboration with cross-functional teams
- Maintain records and track bugs/resolutions on daily activities with Jira
- Manage CI/CD for the business' fleet of wireless node devices with Bamboo
- Improve business performance by directing and providing hands-on assistance with Quality Assurance teams
- Provide technical guidance and leadership to development team members and educated on important design decisions and procedures

Lead Embedded Engineer at Eaton/Cooper Lighting Solutions, Atlanta

July 2017 — May 2022

- Lead a team of 3+ engineers to develop New Product Initiatives (NPI) that utilizes Zigbee and Silicon Labs ARM microcontrollers (MCU) for lighting control systems with various communication interfaces to LED drivers
- Lead developer of a lighting control system that implements a light-weight machine-to-machine (LwM2M) client with Datagram Transport Layer Security (DTLS) on a FreeRTOS
- Lead developer for a Bluetooth Low Energy (BLE) firmware project aligned with Eaton's Internet of Things (IoT) strategy to improve connectivity, energy efficiency, operation efficiency, and communicate regulatory test results to a mobile application
- Using the Atlassian Product Suite, deployed projects and continuously improved software processes based on the scrum framework and agile methodologies (Bitbucket, JIRA, Bamboo, and Confluence)
- Collaborated with multidisciplinary teams to define interface requirements between hardware and mobile applications, while ensuring product specifications are complete, accurate, and achievable

Lead Embedded Software Engineer at General Electric Healthcare, Waukesha

February 2017 — June 2017

- Demonstrated independence and sound technical judgment to identify problems and develop solutions for the platform utilized on flagship CT scanner

- Provided technical guidance and leadership to junior team members on design and development
- Responsible for the design and development of real-time processes (RTPs) and device kernel modules (DKMs)
- Up-kept proprietary C/C++ platform for a boot control sub-systems for the e500, MIPS, and ARM architectures

Embedded Software Engineer at General Electric Healthcare, Waukesha

March 2015 — February 2017

- Produced Python scripts in order to automate testing scripts and Real Time Processes (RTPs), Downloaded Kernel Modules (DKMs), and debugging tools compatible with the VxWorks RTOS
- Implemented software supporting reduction efforts for various Inventory Carry Value (ICV)/Variable Cost Productivity (PVC) products that were New Product Initiatives (NPI)
- Used Coverity and Code Collaborator to perform static analysis and code reviews, respectively
- Supported formal verification processes and software defect management with IBM Rational ClearQuest and HP's Application Lifecycle Management (ALM).

Firmware Engineer at General Electric Healthcare, Waukesha

September 2014 — March 2015

- Used agile development approaches to create C/C++-written firmware for a platform running the eCos RTOS
- Developed diagnostic tools and low-level drivers that tracked environmental factors for a New Product Initiative (NPI) PET scanner
- Designed a number of VHDL modules regarding reset logic, test, and validate a number of interfaces for custom control boards
- Created TCL scripts for the NIOS II System Console to test I2C commands for hardware to execute read/write operations to flash

Digital Hardware Engineer at General Electric Healthcare, Waukesha

August 2013 — September 2014

- Created a host serial interface module (UART) in VHDL for a complex programmable logic device (CPLD) on a diagnostic control board for a future MRI scanner
- Using, ModelSim, created large simulations and thorough test benches for FPGA and VHDL systems
- Lead discussions for early design concepts for CPLD and FPGA designs, with teams in China and Japan, in an effort to decrease system reset time and give a way to identify system faults for a New Product Initiative (NPI) platform
- Developed and recorded CPLD specifications and carried out verification in accordance with engineering design methods
- Carried out Engineering Change Order (ECO) and Engineering Change Request (ECR) processes for equipment entering the end-of-life (EOL) phase

Wireless Systems Engineer at General Electric Healthcare, Milwaukee

February 2013 — August 2013

- Extend a Linux-based C++ project that analyzed wireless packet loss between wireless heart monitor devices to wireless LAN (WLAN) controllers
- Used RF isolation chambers, WLAN controllers, and Cisco access points to evaluate the devices' wireless capabilities
- Created C++ code that automatically carried out wireless testing of a unit under test (UUT) in accordance with Design Verification Procedures, resulting in a decrease of 70 manned-labor hours for conducting tests and formatting results
- Created C++ code to coordinate and convey commands to a Cisco WLAN controller, Cisco APs, and a UUT

Image Quality Engineer at General Electric Healthcare, Waukesha

July 2012 — February 2013

- Implemented an image thickening algorithm written in Matlab/Freemat for the Revolution CT scanner, resulting in improved image quality than the installed base CT system

- Created code and scripts that performed automated quantitative analysis on images produced by the install base CT scanner versus the new product CT scanner and provided weight coefficients for thick slices automatically
- When compared to projection space techniques, image space techniques reduced average image noise by 5% while meeting specifications

Service Methods Design Intern at General Electric Healthcare, Waukesha

May 2011 — August 2011

- Modified a Java-based Field Replaceable Unit (FRU) Parts Catalog (FPC) program that can be configured using XML-based configuration files
- Expanded FPC database's logistics, which was estimated to save the company \$5 million per year
- Developed algorithms to increase a field engineer's efficiency, potentially lowering VCP
- Changed design implementation in order to increase visibility and compatibility, making the FPC more cross-platform compatible
- Developed an update feature within the FPC that allowed field engineers to download the most recent FRU database

★ ACCOLADES

Accolades

General Electric Healthcare Edison Engineering Development Program (EEDP) Alumni, Intern Recruiter, National SMART Grant Recipient, Coca Cola Scholarship Recipient, UCF Pegasus Scholarship Recipient, GE African American Forum Scholarship Recipient, Lockheed Martin Corporate Scholarship Recipient, Brecht Scholarship Recipient, Florida Bright Futures Scholarship Recipient,

✎ EXTRA-CURRICULAR ACTIVITIES

National Society of Black Engineers (NSBE)

National Urban League Young Professional Member