

Erik Nyquist

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Personal Details

Website – <https://www.ekn.io>
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Areas of Expertise

Programming Languages

C
C++
C#
Python
UNIX shell scripting (bash, sh)

Tools & Environments

Git
GCC/Clang
Makefiles
GNU ld (linker) scripting
Google Protocol Buffers
GDB
OpenOCD
Valgrind
L^AT_EX
Eclipse
Jenkins
JIRA
Unity/CMock

Personal Skills

- Test-driven development
- Fault finding and debugging on embedded systems
- C and C++ for memory constrained embedded systems
- Rapid prototyping/testing with Python or UNIX shell scripting

Interests

- Compiler design and implementation
- Programming language design and implementation
- Playing music (drums, piano)

An enthusiastic and skillful software engineer, with a comprehensive knowledge of development and validation practices for embedded software systems. Accustomed to delivering and enforcing high quality code and documentation in a high-pressure environment.

Experience

Firmware Engineer, NOVO Engineering Vista, CA

Aug. 2017 - present

Designing and developing firmware and software for IEC-62304 compliant medical device products

- Developed firmware for multiple medical device products using nRF SoCs (closed loop insulin delivery system, "smart" insulin pen cap)
- Developed firmware for multiple pieces of test equipment for medical device products using nRF SoCs
- Developed automated unit tests and integration tests (Python, C) for multiple medical device products
- Participated in creation of software development lifecycle and verification documentation for multiple medical device products

Software Engineer, Intel San Diego, CA

Aug. 2016 - Aug. 2017

Developed low-level hardware drivers and firmware for Intel's low-power SoC products with a small team, including Intel's Galileo, Joule and Curie modules (Linux, RTOS and bare-metal).

- Developed drivers and firmware (C, C++) for the Intel Arduino 101 board, using the open-source Zephyr project (co-operative scheduling real-time kernel for small embedded systems. www.github.com/01org/zephyr).
- Developed Arduino user libraries and APIs (C, C++) for the Intel Arduino 101 board, reviewed/accepted patches from public users regularly (www.github.com/01org/corelibs-arduino101).
- Developed drivers and developer tutorials (C++) for the Pattern Matching Accelerator on the Quark SE C1000 microcontroller (on-die network of 128 hardware neurons capable of autonomous learning/training, and pattern recognition. www.github.com/01org/Intel-Pattern-Matching-Technology).
- Participated in design and development of the Curie Open Developer Kit (C, C++, bash/shell, OpenOCD, GDB), a lightweight framework for developing applications (bare-metal, or using the Zephyr kernel) that can fully utilize the two asynchronous CPU cores on an Intel Curie device (www.intel.com/curieodk).

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SoC Software Engineer, Intel
San Diego, CA

Sep. 2014 - Apr. 2016

Developed and tested low-level hardware drivers and firmware for Quark SoCs (Linux and bare-metal).

- Developed Linux-based test suites (C, Python), for various embedded protocols and systems (UART, CAN, I2C, SPI), on FPGA-emulated systems and during new device bring-up/power-on.
 - Developed test suites (C, Python) for customer SW tools (tools for writing BIOS configuration data to an EEPROM/flash device on a customer board, tools for generating a bootable OS image with custom BIOS, kernel and root filesystem parts)
 - Functional testing of customer SW tools & platforms (microcontroller I/O libraries, toolchain, debugging tools).
 - Low-level debugging and fault-finding (source and assembly level debug with OpenOCD and GDB, analyzing linker scripts, linker map files, and looking at scope traces / logic analyzer traces, to debug I/O device drivers or C/C++ run-time init. code running on a target microcontroller device)
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Software Design Engineer, Intel
Ireland

Aug. 2012 - Sept. 2014

Developed and tested Linux-based software & drivers for the Intel Quark X1000 SoC. Brought Intel Galileo board (first x86-based Arduino board) from design to market.

- Prototyped software solutions for supporting Arduino-compatible code on an embedded linux-based platform
- Usability and functional testing of customer SW tools (Code editor/IDE, setup tools and scripts)
- Provided technical support to users via online forum www.maker.intel.com

Education

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Master of Science, Computer Science
University College Dublin, Belfield, Ireland

Bachelor of Engineering, Audio Visual Media Technology
Dun Laoghaire Institute of Art, Design and Technology, Dublin, Ireland