

SUMMARY

Experienced Engineer and self driven learner with a long history of working in the high tech industry. Strong engineering professional skills in Linux software development, Server/Data storage design, Embedded Systems, Root of Trust Security, Autonomous Systems, GPU Architecture, Virtualization technologies. and ASIC/FPGA design. Software skills in C, C++, Python, Rust, Verilog. Five Patents Granted: (7987229, 8156220, 8090789, 8645623, 7631128).

I have Irish and USA citizenship.

EXPERIENCE

Qualcomm

Cork, Ireland

Principal Engineer/Manager, GPU Software

Nov. 2022 - Present

- *Senior Staff Engineer/Manager, Snapdragon Root of Trust Software*

Nov. 2019 - Aug. 2020

C, C++ Root Of Trust Security GPU SW, HW Architecture Leadership

- Built/led software engineering teams for GPU software development - Vulkan, OpenCL, DX12, Tools for Snapdragon Adreno GPU.
- Led a software validation team for a new Hardware Root of Trust (RoT) IP in the Snapdragon SoC. Developed C code, Python and cmm scripts to exercise and validate the various Crypto hardware blocks, and the various RISCv/custom CPU cores within the Hardware Root of Trust IP.

Helgen Technologies

Cork, Ireland, Baltimore, MD

- *Cofounder, Engineering Lead and Technical consultant*

Sept. 2021 - Sept. 2022

Leadership Digital Twins C, C++

- Co-Founder of startup for heavy machine automation. Built a small engineering team to work on digital twin solutions for heavy machine automation.
- Boot strapped the company by working as sub-contractor for Automotive and Drone startup companies. Helped develop C and C++ code for embedded development.

Jaguar Land Rover

Shannon, Ireland

- *Senior Software Engineer, Software Architect*

Oct. 2018 - Oct. 2019

C++ ADAS SW Architecture

- Developed vehicle motion controller algorithms for use on ADAS Level 4 capable self-driving software stack. Developed C++14 code for ADAS prototyping and development.
- Software Architecture for next-gen electrical vehicle architecture platform.

Dell Technologies, EMC Corporation

Hopkinton, MA

Principal Software Engineer, Platform SW team

Jan. 2012 - Oct. 2018

- *Principal Firmware/Hardware Engineer, Platform HW team*

Jan. 2006 - Jan. 2012

Senior Hardware Engineer, Platform HW team

Jan. 2000 - Jan. 2006

C, C++, Python Linux, U-Boot, Device Tree, Buildroot, UEFI BMC, IPMI PCIe, Infiniband, Ethernet

- Developed several embedded Linux applications for server, storage enclosure management products based on ARM64, x86 platforms.
- Contributed to in house custom BMC firmware stack. Developed platform specific adaptations in u-boot, Linux applications, kernel, drivers for various for different server and storage products.
- Developed composable storage platform based PCIe and Ethernet based fabric backbones. Ported Broadcom Network OS to ARM64 platform.
- Developed C and C++ UEFI Applications and Device Drivers. Collaborated with 3rd party vendors for UEFI Device driver development.
- Developed a Mellanox InfiniBand SoC "Exerciser" as a proof of concept for the new fabric backbone network for the VMAX Data Storage product. Influenced the design and direction of the project. Developed a testing framework (C, python) for the project to program MLX MAD packets to exercise the SoC.
- Developed a family of custom ASICs targeted to the Symmetrix Data Storage products. Led architecture and design of custom Tensilica embedded processors and firmware development. Acted as Technical Leader on the Firmware architecture and development. Developed C code to run on embedded Tensilica processors. Developed hardware design using Verilog and Cadence tools. Responsible for co-design of hardware vs firmware tradeoffs and optimizations.

EMC Corporation

Cork, Ireland

ASIC Component Engineer

June 1997 - Dec. 1999

- *Test Engineer*

June 1993 - Aug. 1997

HW Debugging Data Storage Testing ASIC/FPGA Technology

- Started an internal environmental test department for stress testing Symmetrix controller boards.
- Responsible for setting up specialized test equipment, developing the test strategy and training.
- Responsible for both test and board/component level debug on Symmetrix Data Storage Products and ASIC/FPGA failure analysis.

Amdahl Corporation

- *Test Engineer*

HW Debugging Mainframe computer architecture

- Assigned to Test Engineer role for the Amdahl 5995M mainframe.
- Responsible for board level test and debug of various elements within the mainframe.

Dublin, Ireland

June 1992 - June 1993

Cork Institute of Technology

- *Research Assistant*

HW,SW Design System Requirements 8051 assembly

- Designed and implemented a “Talking Multi-meter”.
- Responsible for the design of an 8051 Embedded Microcontroller and a TI speech synthesis chip for taking electrical measurements as input and used synthetic speech to output the result of the measurement.
- The project included both hardware design and software development using the 8051 assembly language.

Cork, Ireland

Jan. 1992 - June 1992

EDUCATION

- **University of Limerick**

Master's degree in Computer Engineering (Part-time)

Limerick, Ireland

Sept. 1997 - June. 2001

- **British Computer Society / Dublin Institute of Technology (DIT)**

Degree Computer Science (Part-time)

Dublin, Ireland

Sept. 1992 - June. 1996

- **Cork Institute of Technology CIT)**

Electronic Engineering

Cork, Ireland

Sept. 1988 - June. 1991

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PATENTS

- **7987229:** [Data storage system having plural data pipes](#)
- **8156220:** [Data Storage System](#)
- **8090789:** [Method of operating a data storage system having plural data pipes](#)
- **8645623:** [Method for performing a raid operation in a data storage system](#)
- **7631128:** [Protocol controller for a data storage system](#)