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SAMYUKTA MUDUGAL

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ABOUT ME

I have spent 5+ years in the embedded world writing code in C, C++, Python and Assembly quickly learning numerous storage protocols along the way. Working in the Storage Industry, I had to engineer firmware to interface with many different hardware components. I learnt a lot while writing code for a high performant, memory constrained system towards an innovative technology. I would love to broaden my skill set by working in an innovative industry.

SKILLS

Skills	C, C++, Python, Assembly Language Programming, ARM, RTOS
Certifications	Certified Scrum Master, CU Embedded Systems Certification
Source Control	SVN, Git
Storage Protocols	NVMe, AHCI, SAS, SATA
Protocol Test Tools	Lauterbach Debugger, JDSU - SAS jammer, SAS Analyzer, LeCroy – PCIe Analyzer, Drive Master

WORK EXPERIENCE

Staff Firmware Engineer
SanDisk, a WD Brand
Feb 2016 – Current

- Wrote unit tests in a **Python**
- Below are details of my work on firmware for Enterprise NVMe SSD
  - Worked on chip bring-up and hardware check-out of the **ARM** controller. Implemented low level code in **Assembly and C** to interact with the HW.
  - Designed and implemented features like end-to-end data path protection, **Security**, PCIe reset functionality, error recovery and various NVMe protocol specific features.
  - Worked on code for various **HW components** like SPI, UART, DMA engines, HW interrupts, Encryption engine, Inter Processor Communication.
  - **Very proficient** with the use of debuggers and analyzers.
  - Implemented various tasks that run within a **RTOS**.
  - Worked seamlessly with QA and manufacturing teams to fix bugs and strengthen the product.

Senior Firmware Engineer
SanDisk, a WD Brand
April 2013 – Feb 2016

- Developed features for PCIe based AHCI SSDs such as AHCI BAR space initialization, PCIe Error Recovery, PCIe Core and PCIe DMA module.
- Analyzed customer specifications vs. industry standards and scheduled feature implementations.
- Implemented interface code, features and bug fixes for SATA and SAS SSD.

Firmware Development Engineer
LSI Corporation
May 2011 – April 2013

- Developed firmware for SAS3 RAID HBA. This involves the understanding and implementation of RAID types 0, 1, 10, 5 in C++.
- Worked on improving the I/O performance of the SAS3 HBA. This involved in depth analysis of the code, IO path and maximising the efficiency of the IO path.
- Worked in Systems Engineering for 6 months. This involved direct interaction with customers, debugging customer reported issues and forming a reliable interface between the customers and the developers.
- Prototyped the use of a static analysis tool called Coverity.

R&D Intern
Covidien Energy Based Devices
May 2010 – April 2011

- Built a UI to interface with a DSP Control Board using the Serial Interface (RS232).
- Interfaced an analog to digital Impedance Converter Board to a DSP Control Board using the I2C interface.
- Built a C#, .NET based GUI to provide extensive control to the DSP Control Board.

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EDUCATION

Graduate	M.S. in Electrical and Computer Engineering University of Colorado, Boulder **GPA: 3.8**	2009 - 2011
Undergraduate	B.E. in Electronics and Communication Visveswaraiah Technological University, India **GPA: 3.9 (Aggregate: 82%)**	2005 - 2009

NOTEWORTHY MENTIONS

- Presently volunteering as a TA for **STEM related workshops** such as Scratch, Sphero, Python, Electronic Circuits, and Arduino for kids at the **Lafayette Public Library**. Organized by the Lafayette Tech Meetup group.
- Volunteered as a **tech consultant** at **Imagine Smart Home** in Boulder. Helped the disabled residents use various tech devices.
- Volunteered at the **Children's Literacy Center** at Colorado Springs. Helped kids with reading.
- Volunteered for the **Expand Your Horizon Conference** held in CU. It's a conference for middle school girls to expose them to the world of Science, Math, Engineering and Technology.