Sriram Sundararajan
sriram@tinverse.com
Irvine CA 92620
720-234-6498

Summary

- Extensive software development experience building real-time medical devices and server side software; knowledge of ISO 14971 and IEC 62304.
- Real-time software architecture for Surgical Robotics Platform.
- Delivery Lead for Class II Automated syringe filler device.
- System architecture for Apheresis devices performing 1M+ procedures every year.
- Architect for products requiring extensive data collection and analysis.
- Very good understanding of multi-core systems and hardware architecture.
- Experience working with cross-functional Engineering teams, Marketing and Field support engineers.

Tinverse LLC, Irvine CA Sep '17 – Present
Principal
Various roles in Design and implementation of software for Robotic Surgery, Ventilators, Dialysis Machines and Automated IV Pumps - Communication, drivers, real-time system, Kernel Customization (Linux, Qnx), safety, authorization, authentication and alarms subsystems.

Product: Surgical Robot (Verb Surgical)
Responsibilities involved mentoring engineers, building and reviewing verification software for various surgical modules. Helped develop common architecture for verification software. Supported several tasks related to creating Python and C++ software infrastructure.

Product: Automated IV system (Baxter Healthcare)
Developed Security, Database and alarms infrastructure on Linux. Developed serial communication protocol and drivers. Developed remote data communication subsystem.

VytronUS (Acquired by Auris Health), Sunnyvale CA May '16 – Sep '17
Software Lead
Product: Robotic catheter for treating Atrial Fibrillation. Responsible for improving product architecture for Multi-center clinical trials. Designed and implemented the monitoring subsystem. Redesigned existing process infrastructure for stability and testability. Helped isolate memory leaks and reduced design complexity using hierarchical state machines. Developed customized Linux image and led effort to transition Windows Visualization UI to Linux.
Setup CI and build infrastructure and standardized build process across Windows, Linux and QNX.

Auris Health (Acquired by J&J), Redwood City CA Mar '15 – May '16
Architect, Real-time Software
Product: Robotic Surgery - Monarch Platform. Responsible for designing the post FIM commercial release platform for Monarch. Developed the threading and communication infrastructure, QNX BSP. Developed tools for profiling various components. Reduced new device integration time from ~7 days to ~2 days. Implemented surgical tool models.
Tools: qnx, git, linux, c, c++, python, CMake, Jenkins, EtherCAT

Baxa Health (Acquired by Baxter Healthcare), Englewood CO Apr '12 – Feb '15
Sr. Principal Engineer
Product: Automated Syringe Filling device. Software Development Lead for Class II medical device from concept to launch. Built up the software team, drove decisions on hardware and

software choices. Leveraged open hardware saving over 1M+ in budgeted expenses and ~7 months in HW development. Designed and implemented several infrastructure components for the software and managed the development process using Scrum.

- Infrastructure components included Logging, State Machine, Configuration, Messaging, Hardware abstraction layer.
- Boot up optimization, board bring-up and Cybersecurity risk assessment.
- Interfaced with hardware using SPI, RS-232, PWM, GPIO, I2C and USB/Serial.
- Developed test framework and associated Python interface.

Tools: yocto, git, linux 3.8, C, C++, boost, python, SWIG, jenkins, valgrind, gcov, cppunit.

Terumo BCT Inc., Lakewood CO Sep '05 – Apr '12
Sr. Software Engineer

Worked on Class III Apheresis based market leading automated blood processing device. Owned a key subsystem that modeled blood collection. Improved existing design for two 510(k) submissions related to this subsystem, decreasing the yield variability from 15% to < 5%. The algorithm run time improved 300%. Also designed and implemented safety system, field service software, remote data collection for a petabyte size database that involved 1M+ procedures per year.

- Envisioned, developed and enhanced blood collection tools that led to development of new products.
- Lead, Device Interface Tools Suite - A product for field technicians worldwide for diagnostics, upgrade, data collection and servicing of multiple devices. Developed TCP/IP messaging layer, FTP server and UI components.

Tools: C++, VxWorks, C#, Oracle, .NET

Open Source

- tsm - A state machine framework with support for Hierarchical and Orthogonal State Machines.
- noddy - A Python implementation of the Raft Distributed Consensus Protocol

Education
M.S. Computer Science - Dec 2003 Texas Tech University
B.S. Mechanical Engineering - Dec 1997 University of Kerala

Additional Coursework - Embedded Systems (CU Boulder), Machine Learning (Andrew Ng), Introduction to Artificial Intelligence (Norvig, Thrun)