Kyosook Shin

Austin, TX. 78738 | (512)844-4068 | kyosook.shin@gmail.com
https://www.linkedin.com/in/kyosook-shin/

Summary
Embedded software engineer with 15+ years of experience in telecommunication industries interested in cost-efficient and high-performance programming. Certified Six Sigma Master black belt specializing software development cycle.

Skills & Tools

SDLC (Software Development Cycle):

- Experienced in full software development life cycle from requirement analysis traceable with use case scenario, testcase automation, unit test and integration test, up to high level analysis, detailed level analysis, implementation, testing, delivery, deployment, and on-site maintenance.
- High-level architecture design focused on hardware/software/multi-processor job decomposition.
- Certified Cost-efficient project management skills with statistics-based six sigma methodologies.
- Performance optimization utilizing in-house dynamic analysis tools.
- Prototype development, Platform integration, version-up, model specification, design pattern elicitation

Microcontrollers:

- ARM Cortex-M series, PowerPC 860/8240, Raspberry Pi, Beagle bone, Atmel
- BSP (Board Support Package) and kernel initialization, IRQ (interrupt control request), OS integration
- Multi-ICE (JTAG) debugging, schematics reading, hardware intact verification.
- ARM IDE tools, QT IDE tools

Peripheral control (Device Drivers):

- Communication (packet control): ATM SAR, Ethernet, TCP/IP, UART, HDLC
- BUS and miscellaneous: PCI, ISA, GPIO, I2C
- Timer, RTC for real-time kernel

Embedded Operating Systems:

- OS porting to embedded Linux, VxWorks, Nucleus, and to a proprietary tiny-OS
- WCDMA/HSDPA data path optimization and integration into Nucleus
- Linux Gsteamer data path optimization

Software Development Environments

- Visual Studio .Net, Unix/Linux shells (Bash, C shell, K shell), QT, Eclipse, NetBeans

Telecommunication Protocols:

- ATM, TCP/IP, Frame Relay: IPoA (IP over ATM) frame encapsulation/decapsulation, UNI/NNI/PNNI, ATM interworking with Frame Relay (packet interoperability function development)
- TCP/IP socket communication, TCP/IP routing signaling.
- WCDMA/HSDPA: 3GPP TS 25.101, TS 25.211, TS25.212, TS25.213, TS25.214, TS25.215 simulation, prototyping, modem control software development, 3GPP 25.321 MAC layer (user plane) software development and optimization, 3GPP 25.322 (control plane) development and optimization

Programming Language:

- Low level languages: C/C++, ARM Assembler, PowerPC Assembler
- High level languages: C++, C#, CHILL, Java, Python
- Script languages: Tcl/Tk, Javascript, Perl, HTML, CSS, Makefile
- Database: DREAM-S, SQLite, Microsoft SQL Server, Linux SQL Server

Open Source: OpenGUI, DICOM, Qt, Sql, Ubuntu

Software Tools: Klocwork, CppTest, UML/SLC, Clearcase, Git, Minitab

Experience

Dimedi Korea. Korea. June 2013 – Aug 2014
Senior Engineer
Projects
Dicom PACS software development

- Developed ZeroPACS software that can acquire, store, transmit and retrieve medical images (CT, MRI, CR, DR, PET, etc)
- Implemented/Tested/Delivered standard DICOM Communication between diagnostic devices to ZeroPACS server/viewers. (Dcmtk library porting, interface layer, user application layer development)
    - Dicom to 2G image transformation, resizing, display, compress/decompress (png, tiff, bmp, jpeg)
    - Dicom information extraction to pdf or xml files.
    - Client/Server/Gateway networking between medical devices over TCP/IP
- Deployed/Maintained to 100+ medical sites in South Korea
- Microsoft Visual studio C# .Net, Microsoft SQL Server

Medical Gamma Camera development

- Participated in the planning/analysis/implementation/test processes.
- Selected at the project fund bidding by GBSA(Gyeonggido Business & Science Accelerator) and funded with more than $800k. Selected as a best practice project and presented the result at the national meeting by KIAT (Korea Institute for Advancement of Technology).
- Developed Gamma Camera user interface application & firmware.
    - Installed Ubuntu Linux on Raspberry Pi, Angstrom Linux on Beagle Bone
    - Installed Qt IDE and developed UI application program on it.
    - Developed/Tested Gamma camera initialization firmware during the boot sequence.

Samsung Electronics. Korea. Sep 2002 – Aug 2012
Senior Engineer
Projects
WCDMA/HSDPA Modem Development (2002~2008)

- Developed Prototype/Simulation programs for HSDPA functionalities based on 3GPP TS 25.101, TS 25.211, TS25.212, TS25.213, TS25.214, TS25.215. Concentrated on Layer 1 PHY functionalities.
- Integrated HSDPA functionalities onto WCDMA modem software and successfully ran HSDPA packets. Concentrated on Layer 2 MAC functionalities.
- Upgraded high level architecture to multi-MCU system (AP1, AP2, DSP, Modem FPGAs/ASICs) to meet HSDPA throughput requirement.
    - Hardware/Software/multi-processor job decomposition with top-tier global engineers in the Samsung R&D Institute UK for more than three years.
    - Focused on Performance, Cost-efficient programming/testing: Hardware architecture and clock-aware software programming.
- Developed 3GPP 25.322 functionalities and tested. Concentrated on Layer 3 RRC (control plane) functionalities.
- Played as a liaison between Samsung R&D Institute UK and HQ throughout all development cycles and functionalities.
- ARM32 Core, Nucleus kernel, ClearCase, C/C++, ARM Assembler

Software System Engineering (2008~2012)

- Received Six Sigma Master Black Belt education for 6 months and relocated to Samsung CTO Software Strategic Team
    - Lectured Six Sigma Process and statistical analysis methodologies throughout Samsung Electronics division for two years.
    - Guided 40+ Six sigma projects.
    - Elicited best practice software projects and awarded them annually.
    - Applied/Led Six Sigma Software Development Process to optimize Firefox Gstreamer performance enhancement project.
        - Ubuntu Linux on ARM32, C language
        - Testcase design, statistical analysis
    - Maintained project solution bank containing thousands of projects in the Six Sigma project database.
        - Refined the solution database and distributed the skills throughout Samsung Electronics.
        - Elicited refined performance improving software development methodologies.
        - Elicited embedded software development best practices and applied them to the Samsung standard embedded software development cycle.
- Platform integration and redundancy elimination project
    - Integrated the best three software packages into one platform for further consistent Samsung Mobile software base model.
    - Removed redundancy/bugs and cleared regression test for the integrated package.
    - Built standard test process for the newly built standard base model.
    - Refined development documentations consistent with UML model.
    - Distributed new standard Samsung Mobile base package for further specific model development to various software departments including Korea KT department, Korea SKT department, Korea LGT department, India Low Price Model department.
- Established/Trained/Supported Software strategic team in the Samsung Beijing Office.
    - Received mission to turn the IP-centric Beijing Office into Software-centric Research Center
        - There were originally 500+ algorithm-developing engineers
        - As the business trend demanded more software engineers than algorithm developers, Samsung Electronics recruited those who wanted to change their career paths to software.
    - Set up Beijing Software Strategic Team.
        - Hired four experienced software engineers.
        - Transferred/trained Software Engineer training programs.
        - Transferred Samsung Software Development Process and artifact requirements to Beijing Software Strategic Team.
        - Transferred/Trained/Supported Software Development Tools and skills.
            - Klockwork, CppTest, UML, Open-source compliance tool
        - Established project execution process between HQ and Beijing Research Center
            - HQ departments could give sub-projects to Beijing Research Center through HQ Software Strategic Team
            - Beijing Research Center had to meet the verification requirements to deliver their artifacts to the HQ.
            - Directly launched/led/guided four seed projects to follow Samsung software development process to train Beijing Software Strategic Team and development departments.
        - Expanded this project execution process to Nanjing Research Center

- Platform architecture analysis and optimization
    - Optimized/Guided 10+ software platforms to follow standard Samsung architecture and design patterns.
    - Analyzed/Clarified/Depicted high-level software architecture using Klocwork.
    - Defined/Applied Samsung standard interface APIs and documentation format between layered architectures.
- Dynamic analysis tool development
    - Planned/Started developing Samsung dynamic analysis tool to identify performance bottlenecks.
    - OS kernel porting to implement performance profiling functions.
        - ARM32, Android Linux platform
    - After I developed the initial version, this project transferred to a dedicated team to expand functionalities and applicable platforms, and became a new standard software development tool, and awarded the Proud Samsung Engineer Prize. (I was not a member of this team, so I didn't get the prize.)

Hanwha Corporation. Korea. Dec 1997 – Feb 2001
Junior Engineer
Projects
ATM Switch development
: Korea national B-ISDN network project led by MSIT (Ministry of Science and ICT)

- Frame Relay interworking software and firmware development
    - Developed T1/E1/DS3 data over PSTN PVC network to/from B-ISDN internetworking.
    - Developed real-time HDLC frame to/from ATM frame encapsulation/decapsulation function – data plane.
        - Developed firmware for Frame-Relay to ATM interworking board.
        - PowerPC 860/8240, no commercial kernel, tiny proprietary OS, VxWorks
        - Developed Device drivers for HDLC frame generator, ATM SAR chips, IRQs, Timers, etc.
        - Developed infinite software routines to extract Frame Relay frame out of HDLC frame, and to relay frame relay frames to ATM SAR chip.
        - Developed real-time Frame Relay traffic shaping function and mapping to ATM SAR chip.
    - Developed interoperable PVC subscriber management software between Frame Relay and ATM network – control plane.
        - Inside ATM switch main processor, CHILL language, DREAM-S database.
- Circuit Emulation interworking software development
    - Developed interoperable PVC subscriber management software between Circuit Emulation and ATM network.
- IP packet interworking software and firmware development (IPoA, MPLS)
    - Developed real-time IP Packet to/frame ATM packet encapsulation/decapsulation firmware – Data plane.
        - PowerPC 8240, VxWorks
        - IP header translation and relay, IPSec header translation and relay
    - Developed IP control packet to ATM network interworking software.
        - Developed IP routing protocol to/from ATM network protocol interworking functionalities.
            - OSPF, RIP, ARP, Ping, DNS table management
            - Translate IP Routing information and maintain ATM PNNI network.

Education

UT Austin Boot Camps. Austin, TX. July 2023-Jan 2024.

Austin Community College. Austin, TX. Jan 2020 – Present. Expected Graduation Fall 2023
Associate of Science in Pre-Medical Studies
A member of Honor's society, Phi Theta Kappa Honor society; GPA 4.0

Yonsei University. Korea. March 1993 – 1998.
Bachelor's in Electrical and Electronics Engineering. Obtained in 1998

Certifications

- Six Sigma Master Black Belt: MBB-0800044-SEC awarded on 12/31/2008
- ISTQB (International Software Testing Qualification Board): #istqb-kstqb-2011757 awarded on 12/1/2011

Language

- Korean (native, read/write/speak)
- English (fluent, read/write/speak)
- Japanese (beginner, read/write/speak)