Vysakh P Pillai

Technical Staff Software Engineer
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PROFESSIONAL SUMMARY

- Seasoned Technical Staff Software Engineer and Secure Systems Architect with 14+ years in the semiconductor industry.
- Specializes in high performance system-on-chip software, system security & device drivers.
- Adept at Python, system integration, devOps, and cloud architectures.
- Proven track record leading cross-functional teams from conception to implementation and customer delivery.
- Natural leader, strong communicator and proactive team player dedicated to delivering top-notch results.

A detailed professional history with project details is available in my online profile at embeddedinn.com/cv.

SKILLS & TECHNOLOGIES

- **Programming Languages** : C, Python, Shell Scripting, HTML, JavaScript.
- **Firmware Development** : Embedded C, RTOS, Device Drivers, Bootloaders, Linux.
- **Embedded Systems** : MIPS, RISC-V, Microcontrollers, SoCs, Wi-Fi, BLE, IoT.
- **Version Control Systems** : Git (Bitbucket, GitHub, GitLab).
- **Debugging and Testing** : JTAG, GDB, Lauterbach, JIRA, Jenkins, Confluence.
- **Communication Protocols** : UART, SPI, I2C, USB, Ethernet, TCP/IP, MQTT, Wi-Fi, BLE.
- **Problem-solving** : System Architecture, Design, and Debugging.
- **Security** : Secure Boot, Secure Firmware Update, Secure Communication.
- **Cloud Technologies** : AWS, Azure IoT, Google Cloud IoT, Docker.
- **Tools** : MPLAB X, TPDS, Jupyter Notebook, Visual Studio Code, WSL.
- **Operating Systems** : Linux, Windows, FreeRTOS.

WORK EXPERIENCE

Technical Staff Engineer – Software

Microchip Technology Inc. , Burnaby, British Columbia, Canada
April 2022 - Present

- Security sub-system firmware architect for the first-generation RISC-V based High-Performance Spaceflight Computing (HPSC) System-on-Chip (SoC)
- Developed a heterogeneous RISC-V core software emulation platform using QEMU, driving pre-silicon development and early customer engagement.
- Engineered robust early-boot architecture for Linux and application software systems, optimizing system resilience.
- End-to-end design and development of a secure system boot ROM.
- Implemented buildroot-based Linux System on QEMU and Protium emulation systems, ensuring easy pre-silicon development.
- Created a bespoke Debian distribution and apt-repo for a RISC-V system, enhancing performance and compatibility.
- Established release infrastructure and DevOps systems, streamlining processes for early customer adoption.

Technical Staff Engineer - Software

Microchip Technology India Pvt. Ltd., Bangalore, India
February 2015 - April 2022

- Applications lead for new Wi-Fi and BLE IoT silicon development at the wireless solutions group.
- E2E Systems architect for cloud, serverless & mobile connectivity, end-node authentication & device security.
- Post silicon bring-up and validation of SoC, RF modules, and development boards.
- Design and architecture of bootloaders, OTA, and compiler features for RTOS-based and bare-metal secure wireless solutions.
- Voice control interfacing using Amazon Alexa™ and Google Assistant™.
- Manufacturing co-ordination and lead architect for apps DevOps framework.
- Extensive customer interaction for new product development and support.

Software Engineer

Cisco Systems India Pvt Ltd, Bangalore, India
August 2011 - February 2015

- Linux Device Driver development for high-end set-top box peripherals.
- Development and integration of networked personalization features for STBs.
- Security module integration of cable card and legacy security modules.
- End to end system integration and performance optimization.
- Build and test automation, process improvement, and release management.

- Building proof of concepts for next-generation product ideas.

Software Engineer

Sasken Technologies Ltd, Bangalore, India
March 2010 - August 2011

- Implementation of Nokia S40 USB device drivers.
- Maintenance activities on existing S40 media connectivity stack.
- Forward and backward porting of drivers and protocol layers to support device models.
- Client interaction to ensure seamless feature delivery.

EDUCATION

Master of Science, Digital Design and Embedded System
Manipal Academy of Higher Education, Manipal, India
January 2011 - February 2013

Bachelor of Technology, Electronics and Communication Engineering
Amrita Vishwa Vidyapeetham, Kollam, India
May 2005 - May 2009

Activities

- **Full-Stack System Design** - Regularly contribute to the silicon to cloud system design community through blog posts at embeddedinn.com and open-source projects in github.com/vppillai.
- **Woodworking** - Hobbyist woodworker, creating custom furniture and home decor items.
- **Travel** - Enthusiastic traveler, exploring new places and cultures.
- **Training** - Regularly conduct training sessions on system design, high performance computing and system security for junior engineers and new graduates.