

# Vysakh P Pillai

## Technical Staff Software Engineer

13750, 100 Ave, Surrey, BC, V3T 0L3, Canada

Email: [VysakhPillai@gmail.com](mailto:VysakhPillai@gmail.com)

Phone: +1 778-877-0493

GitHub : [github.com/vppiillai](https://github.com/vppiillai)

Homepage: [embeddedinn.com](https://embeddedinn.com)

Linkedin: [linkedin.com/in/vysakh-pillai](https://linkedin.com/in/vysakh-pillai)

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## PROFESSIONAL SUMMARY

Seasoned Technical Staff Software Engineer and Secure Systems Architect with 14+ years in the semiconductor industry. Specialize in high performance System-on-Chip Software, System Security, Device Drivers, Python, System Integration, DevOps, and Cloud Architectures. Proven track record leading cross-functional teams from conception to implementation and customer delivery. Skilled in innovative security solutions, reliable system ROM code, and secure boot solutions. Proficient in C and Python, adept at debugging complex issues and developing hardware, software, and firmware. Expertise in MIPS and RISC-V based Linux and real-time systems, Linux scripting, cloud solutions and end-to-end system-level design. Strong communicator and proactive team player dedicated to delivering top-notch results.

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## WORK EXPERIENCE

### Technical Staff Engineer – Software

*Microsemi Storage Solutions Ltd - A Microchip Company, Burnaby, British Columbia*

*April 2022 - Present*

- Spearheading the design and development of pre-silicon SoC software solutions, leveraging HW and SW emulation techniques for first-generation RISC-V based High-Performance SoC.
- Implemented the device QEMU model, accelerating pre-silicon software development.
- Architected innovative security solutions and enhanced HW capabilities for system security.
- Designed and Developed reliable system ROM code and secure boot solutions.
- Managed the design and implementation of multi-core, partitioned, multi-instance Linux solutions, encompassing kernel customization, driver development, and the creation of a bespoke Debian distribution.
- Established a new release process to encourage early customer involvement.
- Resolved intricate performance optimization issues within multi-core real-time systems.
- Developed comprehensive test frameworks using Python for both pre-silicon and post-silicon testing.
- Fostered productive collaboration with product development, application, marketing and validation engineering teams throughout the project lifecycle.

### Technical Staff Engineer - Software

*Microchip Technology India Pvt. Ltd., Bangalore, India*

*February 2015 - April 2022*

- Led the firmware bring-up, verification, and validation for multi-generational Wi-Fi and BLE microcontroller SoC development.
- Designed bootloader, OTA update, and compiler features for RTOS-based and bare-metal secure wireless IoT solutions.
- Architected and implemented end-to-end solutions for cloud, serverless & mobile connectivity, and device security.
- Customer interaction for early product adoption, solutioning and continued support.
- Coordinated manufacturing and led the development of the comprehensive apps DevOps framework.
- Managed the engineering development and applications teams.

### Embedded Software Engineer

*Cisco Systems India Pvt Ltd, Bangalore*

*August 2011 - January 2015*

- Developed Linux Device Drivers for high-end set-top box peripherals.
- Integrated networked personalization features for STBs.
- Implemented security modules for cable card and legacy security systems.
- Optimized system performance and led process improvement initiatives.

## **Embedded Software Engineer**

*Sasken Technologies Ltd, Bangalore*

*March 2010 - January 2011*

- Implemented embedded system software as per design specifications.
  - Conducted maintenance activities on existing software.
  - Ported drivers and protocol layers for compatibility.
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## *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*

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## *SKILLS*

- Proficient in C and Python programming and debugging complex issues.
- Hardware, software, and firmware development at both SoC and system levels.
- MIPS and RISC-V based Linux and real-time systems.
- Linux and Linux scripting languages.
- AWS for IoT solutions.
- End-to-end system-level design and architecture from low level device bring-up to cloud systems.
- Hardware-in-the-loop DevOps system design with Jenkins, Git, Bitbucket, Docker and Jira.
- Strong team player with a proactive approach.

## *Activities*

- **Full-Stack System Design** - Regularly contribute to the silicon to cloud system design community through blog posts at [embeddedinn.com](http://embeddedinn.com) and open-source projects in [github.com/vppillai](https://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.