

# 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](https://embeddedinn.com/cv).

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## SKILLS & TECHNOLOGIES

- **Programming Languages** : C, Python, Shell Scripting, HTML, JavaScript.
  - **Security** : Secure Boot, Secure Firmware Update, Secure Communication.
  - **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.
  - **Cloud Technologies** : AWS, Azure IoT, Google Cloud IoT, Docker.
  - **Tools** : MPLAB X, TPDS, Jupyter Notebook, Visual Studio Code, WSL.
  - **Operating Systems** : Linux, FreeRTOS.
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## 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 a 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 coordination 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.

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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, Kerala, India*  
*May 2005 - May 2009*

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## Activities

- **Full-Stack System Design** - Regularly contribute to the silicon-to-cloud system design community through blog posts at [embeddedinn.com](https://embeddedinn.com) and open-source projects in [github.com/vppillai](https://github.com/vppillai).
- **Woodworking** - Hobbyist woodworker, creating custom furniture and home decor.
- **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.