Piyush T. Itankar

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tl;dr Passionate about **C**, **RISC-V**, **Embedded OS**, **FPGA** & **DSP** based solution development. Can **thrive in ambiguity** and loves **Hardware-Software co-design/cross functional team work**. MSc. Tech (E.S), BE (EE).

arsenal Device Drivers, **C**, **Python**, **ARM** (M and A class), **RISC-V**, **FPGA**, Verilog/SV, DSP, Embedded OS.

experience

Google India Pvt. Ltd **Now**

[Software Engineer, Embedded Systems : Since July 19] - **Firmware** and **Bare-metal code** development to expose interfaces to the hardware. Responsibilities include - **driver development**, **HW-SW co-design/simulation**, **platform bring-ups**. Currently handling driver development (individual contributor), **leading a power management** support **team of 2** and scoping/planning future work.

Intel Tech India Pvt. Ltd **2016 - 2019**

[System Validation Engineer (RF) : Since June 18] - RF chain analysis and **development** of software to tweak RF parameters externally using **C** and **Python**. Responsibilities included studying the Bluetooth RF chain behavior for ISM band, **calibrating and programming RF peripheral**, ensure compliance with Bluetooth specification.

[Software Development Engineer: Nov 17 - Jun 18] - **Led** a team of college graduates to **design and develop GUI extension** for a debugging tool (in **Python and PyQt**) that could allow establishing a control path to the Bluetooth controller via the 'Host control Interface' protocol over USB, UART and Socket (for Virtual Platforms) interfaces. The tool enabled discretely controlling the Bluetooth activities to be able to reproduce bugs and do code testing on real hardware. Responsibilities included reverse engineering the **architecture of pre-existing parts of the the software, designing data-structure and interfaces to tap the transaction flow over the hardware interfaces, handle the asynchronous commands and events, modular and scalable modules, development of GUI in PyQt, mentoring, task assignment, follow-up and delivery of the tool**.

[Software Development Engineer: Dec 16 - Oct 17] - **Developed and delivered UEFI drivers** for Bluetooth Stack (in **C**). Responsible for working under a tech-lead to design and deliver Vendor configuration driver which would **download Firmware** to Bluetooth controller as part of boot up, **Keyboard and Mouse report mode drivers** and **FTDI driver** for triggering a custom hardware for **latency measurement of wireless transactions** of click events.

[Software Development Engineer: June 16 - Nov 16] - Worked in team of Six under a Systems Architect to **develop and deliver the A2DP** profile (in **C**) to Zephyr open source IoT project.

[Intern: Firmware Engineering : 2015-2016] - Worked with GNSS firmware development group. Responsibilities included delivering on the development tasks assigned as part of which have **developed a memory manager** (in **C**) that **handled memory allocation for a 2kB space**, **designed and developed a math library** (in **C**) to **compute distance between two points over the surface of Earth**, bring up of pre-silicon development **virtual platforms**, **static analysis of firmware to compute memory and time requirement** for on chip memory design requirements.

projects

- RISC-V BSP and Bare-metal code
- RISC-V CPU implementation
- Round Robin Scheduler for ARM-M processors
- MIPS 32 Bit CPU Design on Altera DE1-Soc
- Hardware Designs for Lattice iCE40 FPGA

publications

- Automatic Generation of Push Notification Alerts of Approaching Emergency Vehicles
- Dynamic contextual searches to assist teachers
- Spatially and Temporally Directed Noise Cancellation Using Federated Learning
- FPGA development Flow, FPGA Internals