

Deepak Singh Rawat

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Summary

Software Engineer specializing in systems and platform software across Windows, Linux, and embedded targets. Expert in C and C++ with deep experience in operating systems, device drivers, graphics, and real-time media pipelines. Currently building cross-platform components of large-scale communication software, with a long-standing interest in open source and low-level system programming.

Experience

Microsoft, Senior Software Engineer Sep 2019 – Present, Redmond, WA

- Delivered 4K screen sharing across the video pipeline (capture, encode, transport, render).
- Shipped a GPU-accelerated frame resizer and color converter via the Media Foundation Transform (MFT) API, reducing CPU usage and power consumption.
- Drove sender/receiver screen-sharing reliability to 99.9% through telemetry-driven root-cause analysis and targeted fixes.
- Designed an API for device categorization by hardware decode capability, enabling smarter codec and resolution decisions.
- Developed and previously maintained the Hyper-V DRM driver for the Linux kernel.
- Built and maintained an internal Yocto-based Linux distro for embedded hardware; contributed upstream to several open source projects.

VMware Inc, Member of Technical Staff Feb 2017 – Sep 2019, Palo Alto, CA

- Contributed to the Linux graphics stack for VMware's virtual GPU across the kernel DRM subsystem and the Mesa 3D driver.
- Added Shader Model 4.1 command support and conformance tests to the virtual GPU kernel-mode driver.
- Authored and upstreamed the "plane update with damage" feature in the Linux DRM subsystem, reducing redundant display updates and improving compositor efficiency.

Samsung Research America, Software Engineer May 2015 – Feb 2017, Mountain View, CA

- Contributed to GearVRf, an open source Android VR rendering library. Joined as an intern from May to Aug 2015 and returned full-time in May 2016.
- Plugin development for the 3D rendering library.

MediaTek Inc, Senior Software Engineer Nov 2011 – Jul 2014, New Delhi, India

- Developed multimedia apps such as the video player, sound recorder, and music player with playlists on MediaTek's feature phone platform; worked across middleware and application layers in a resource constrained embedded environment.

Infosys Ltd, Systems Engineer Dec 2009 – Nov 2011, Bangalore, India

- Web based application development using Java technologies.

Technical Skills

C, C++, Python, Bash Scripting, Linux, Driver Development, 3D Graphics, Embedded System, GDB, Git, Object Oriented Design, Data Structures, Android

Education

University of Southern California, Los Angeles, CA 2014 – 2016
Master of Science, Computer Science

Govind Ballabh Pant Institute of Engineering & Technology, Uttarakhand 2005 – 2009
Bachelor in Engineering, Computer Science and Engineering