Abhishek Sansanwal

Senior Software Engineer with 8+ years in **C/C++** for **embedded systems, AI accelerators**, and **cross-platform apps**. Proven impact at **Microsoft**, **NVIDIA**, and **Samsung**. Skilled in functional C++, **system design**, and cross-team collaboration.

Phone   (+91) 9654118011

Mail   abhisheksansanwal94@gmail.com

Github   github.com/a-sansanwal

Linkedin   linkedin.com/in/asansanwal

EXPERIENCE

Microsoft, Noida — *Senior Software Engineer*

May 2024 - PRESENT

MAIA AI Frameworks, the team worked on implementing kernels for the MAIA AI Accelerator. My contribution was on the IVP (Image video processor) subsystem.

- Implemented support for **code compilation** for IVP core. Including **multiple core support** and **simulator fixes**.
- Designed and developed **intercore communication** using Shared memory and software credit mechanism for IVP.
- Built core synchronization primitives for IVP, including **semaphores and message queues**.
- Developed an image classification demo using Nepal C++, implementing key ML operators – **Maxpool, Batchnorm, Relu, Flatten, Convolution**.
- Built and deployed a scalable Braga **SoC simulator cluster on azure,** with a client application RoadRunner to submit jobs. Outlined strategies for **cost optimization** by using scaling. Saving an estimated $30000 monthly.

Microsoft Defender, the team worked on developing Defender for Linux and MacOS.

- Engineered core anti-malware platform, daemon and command line frontend written in **functional style C++**.
- Contributed to stdext – an internal functional style C++ extension library.
- **Delivered MITRE 2023** features including simplified connectivity, agent auto-updates, sample upload workflows, and ELF signing.
- Designed and implemented a flexible exclusions framework using eBPF, allowing users to filter scanning by process tree, syscalls patterns, filesystem events, network events.
- Authored **threat models, architecture documents, privacy assessments** for all major features.

SKILLS

Languages: C++, C, Python, SQL, Bash

Tools & Platforms: Linux, Azure, GDB, Git, Perforce

Frameworks: STL, eBPF, CMake, Google Test

IDEs: Vim, Emacs, Visual Studio, VS Code

Concepts: Data Structures, Algorithms, DBMS, Functional C++

PATENTS

Patent (2018) – Method for Operating Handheld Device on A virtual Reality (VR) Device, And a Handheld Device Thereof (Application no. 201811002067, Korean IPO Application no. PCT/KR2019/000776)

Patent (2019) – Electronic device and method of operating electronic device in virtual reality (WO2019143189A1)

AWARDS

Merit Scholarship (2016) – B.E in Computer Engineering at Netaji Subhas Institute of Technology

National Science Olympiad, Science Olympiad Foundation (2010) – Gold Medalist, School Topper (2010)

Nvidia, Pune — Software Engineer 2

April 2019 - February 2022

Multimedia applications, the team worked on different projects related to image, video and audio AI frameworks.

- Contributed extensively to NVIDIA's open source **DALI** framework, specifically to the Video Decoder component.
  - https://github.com/NVIDIA/DALI/commits?author=a-sansanwal
  - https://github.com/NVIDIA/DALI extra/commits?author=a-sansanwal
- Researched and benchmarked **image super resolution** models and developed improvements.
- Developed CloudXR SDK, a **AR / VR / XR / MR** streaming solution. Ported the app to Linux, x64 and ARM architecture using OpenGL to render.
- Designed and developed a custom streaming api and a testing framework for CloudXR clients.

Maxine SDK, formerly Audio Effects SDK - to enhance real-time audio, video, and augmented reality (AR) experiences.

- Built and maintained Linux SDK for low latency audio and AR/VR effect pipelines for real time streaming.
- Developed ML-based audio enhancement features: **Audio Super Resolution, Echo cancellation** and **Noise reduction**.
- Implemented low latency logging, and performance tracing framework for the SDK.
- Integrated effects modules from multiple teams into a unified SDK..

Samsung R&D Institute, Delhi — *Software Engineer*

July 2016 - March 2019

Tizen connectivity middleware team

- Developed **middleware APIs** for different networking subsystems including **Wi-Fi, SoftAP, Ethernet, Tethering, Net-Config, Connman, VPN, MDNS, BlueTooth**.
- Contributed over 180 **Open Source commits** to the Tizen Linux project (Linux Foundation).
- Built C/C++ **UI applications** using EFL graphics library for **smart devices - TVs, phones, tablets, wearables, IoT boards (e.g ODROID, Raspberry Pi, Artik), smart refrigerator.**

PROJECTS

Highlight the Web – Hackathon 2022
Collaborated with the WebXT team at Microsoft (Redmond, US) to build a Chrome/Edge extension that summarizes webpages. using GPT-2 (OpenAI) and Azure Cognitive Service for Language.

Data Hiding Using Image Steganography (B.Tech Project 2016)
Developed a reversible steganographic system using 3–LSB and mix–column transform with Python, C++, and OpenCV. Built a user–friendly web interface for data embedding and extraction using the LAMP stack.

Image Classification Demo (2025)
Developed a demo app in NEPAL C++ for image classification at Microsoft. Implemented key ML operators (Convolution, MaxPool, BatchNorm, ReLU, Flatten) and integrated them for inference with a model trained on PyTorch using A100 Nvidia GPU.

EDUCATION

B.E (2012 - 2016) - 7.398 CGPA
Computer Engineering (COE), Netaji Subhas Institute of Technology (NSIT)

AISSCE (2010 - 2012) - 93%
St.Mary's School (CBSE)

AISSE (2000 - 2010) –9.4 CGPA
St.Mary's School (CBSE)

LANGUAGES

English, Français, Hindi