

Saswat Jung Khadka *Student*

✉ saswatjungkhadka@gmail.com  <https://github.com/saswatjk>

 <https://saswatjk.github.io/personal-site/>

Education

Bachelors in Computer Science, *Kathmandu University*, 3.58 2021 - 12/2025

Skills

Programming Languages – C/C++/GoLang/GLSL/Python/HIP

Soft skill – Communication/Problem Solving/Teamwork/Inquisitiveness

Technical – Pix/RenderDoc/MSVC debugger/Trigonometry/Unity/Godot/nvim/Git

Languages – English/Nepali/Hindi/Mandarin

Exploration Areas

Computer Graphics – Raytracing and Rasterization

Performant programming – Data Oriented Design / Cache Aware Programming

CAD – Parametric Surface Modeling development

Compilers

Projects

SG_API, *Graphics API in C++ for VMWGFYX DRM/KMS driver* 06/2026 - Present
Implementation of my own simple Graphics API. It talks to the VMWGFYX driver through IOCTLs.
https://github.com/saswatjk/sg_api 

Atari2600, *Atari 2600 emulator from scratch in C.* 05/2026 - Present
After making a 6502 cycle accurate emulator, I am making this Atari 2600 emulator using that CPU emulator as core. It supports NTSC versions of cartridges and has cycle accurate RIOT and TIA implementation.

City builder, *City builder prototype in C, OpenGL, and SDL3* 05/2026 - Present
Creating an isometric city builder.
<https://gitlab.com/saswatjungkhadka/game> 

PBRT, *Physically based path tracer in C and HIPRT* 03/2026 - Present
Ongoing Physically based path tracer in C. Firstly done in CPU, integrating to HIP-RT.
<https://gitlab.com/saswatjungkhadka/pbrt> 

Minimal Compiler, *Simple compiler made in C* 02/2026 - 03/2026
A simple compiler I built from scratch using Compiler theory. Each stage of compiler theory can be traced throughout.
<https://github.com/SaswatJK/MinimalCompiler> 

Music Torrent, 12/2025 - Present
A torrent client that can download and play music.
WIP torrent client that focuses on music so it can download and play music at the same time. High usage of concurrency.
<https://github.com/SaswatJK/MusicTorrent> 

DXR renderer, *A renderer in D3D12 and C++ that uses DXR.* 2025 - Present
Ongoing project to learn renderer architecture and D3D12.
<https://github.com/SaswatJK/directx-practice> 

DOS demo, <i>Fun graphics demos in 8086 assembly for DOS emulators.</i> A simple checkerboard, funky moving gradient, and a sphere ray-tracer using fixed point maths in 8086 assembly. https://github.com/SaswatJK/dosdemofun	03/2026 - Present
HIP-NN, RRNNs and an abstraction library to make other RRNNs in HIP, in C style C++ Started this project to learn Neural networks from scratch while also learning HIP programming. I am making a library that can help others learn to make RRNNs without losing details in too much abstraction. https://gitlab.com/saswatjungkhadka/AMDGPULearn	04/2026 - Present
Injected, Video game made with SFML in C++ C++ and SFML to make a topdown game. Custom engine. Extended the 'from scratch' philosophy to the art and music, which are also original. group project, I did game physics and art. https://github.com/kripesh101/injected	2022 - 2022

Professional Experience

Research Intern, Medbot Worked as a reasarch intern for Medbot, where my job was to analyse and evaluate different startegies for different agents.	04/2025 - 07/2025 Remote
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Writing

Microfacet BRDFs from Scratch, A blog where I derive the equations for Microfacet BRDFs from scratch. Microfacet BRDFs from Scratch	03/2026
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References

Sudan Jha, Professor,
Department of Computer Science and Engineering, Kathmandu University
sudan.jha@ku.edu.np

Dhiraj Shrestha, Assosciate Professor,
Department of Coputer Science and Engineering, Kathmandu University
dhiraj@ku.edu.np

Gokul KC, Assosciate Professor,
Department of Mathematics, Kathmandu University
gokul.kc@ku.edu.np