

Somnath Sarkar

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Projects/Portfolio: <https://somnathsarkar.io/projects/>

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Work Experience

Graphics Programmer

Sucker Punch Productions (Sony Interactive Entertainment)

BELLEVUE, WA

2022 – 2026

– **Shipped *Ghost of Yotei* (2025)**, a AAA open-world game for PlayStation 5 and PS5 Pro.

- Worked as part of the Rendering and Engine team from early production milestones to release and post-launch content.
- Wrote C++ and PSSL shader code for the studio's proprietary game engine.
- Wrote Python tools with HLSL and GLSL viewport shaders for Maya and Substance artists.
- Led our implementations of screen-space directional occlusion and screen-space global illumination (SSGI).
- Profiled and optimized SSGI performance down by 1.2 ms to fit in a tight 60 fps budget.
- Collaborated with environment artists to improve real-time water rendering with painted detail maps and artifact fixes.
- Built a Maya tool in Python that turns artist-drawn curves into animated brush stroke textures and materials.
- Worked with technical artists and VFX staff to create a procedural tint system, speeding up mesh and particle authoring.
- Helped support PS5 Low Energy Mode by optimizing our multithreaded engine, and fixed visual artifacts for PSSR.

Graduate Researcher, Student, Teaching Assistant

Georgia Tech

ATLANTA, GA

2020 – 2022

- Implemented research papers and devised novel frameworks for Computer Vision and Deep Learning tasks.
 - Developed graduate course materials covering advanced algorithms, optimization and more.
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Education

Masters in Computer Science from [College of Computing, Georgia Institute of Technology](#)

ATLANTA, GA

2019 – 2022

Selected Courses: Computer Graphics, High Performance Computing, Numerical Linear Algebra, Graduate Algorithms, Computer Organization and Architecture, Deep Learning, Computer Vision, Machine Learning

Selected Projects

openntc - Neural Texture Compression tools built on C++ 20, CUDA, DirectX 12 and HLSL

- Compresses PBR material texture sets by up to 95%+ with neural networks, beating standard GPU compression (BCn).
- Wrote an Unreal Engine 5 plugin in C++ with an editor importer that turns compressed files into native UE materials.
- Created shader variants per GPU generation for optimal decoding speed, using DP4A and Cooperative Vectors.
- Profiled shaders with NSight Graphics and optimized decoding down to 2 ms for a large sample test scene.
- Wrote neural network training in PyTorch and ported it to custom CUDA kernels, saving 39 ms per step (6x faster).
- Wrote a user-friendly C++ GUI tool with PBR materials, multithreaded compression and scheme comparison.

Links: [Article](#), [Source Code](#)

lexkit - a fast text layout framework written in C with examples in OpenGL

- Implemented efficient text rendering with Unicode line breaking, text shaping, UTF-8 decoding and hyphenation.
- Profiled code using Intel VTune, and optimized pipeline to use SIMD instructions and lockless multithreading to achieve 6.5x speedup over official Unicode implementation.

Links: [Article 1](#), [Article 2](#), [Source Code](#)

Relevant Skills

Languages: C++, Python, PSSL, HLSL, GLSL, C, CUDA

Graphics Technologies: Direct3D 12, Vulkan, OpenGL, DirectX Raytracing, PS5 SDK, global illumination, FSR, PSSR

Tools: Unreal Engine 5, Maya, Substance Painter, Substance Designer, RenderDoc, PIX, NSight, Visual Studio, Perforce, Git

Achievements

World Finalist, ACM-ICPC 2021

International intercollegiate programming contest with an emphasis on algorithms and problem-solving.

Regional Qualifier for ACM-ICPC 2016-2021, with top 10 national ranks in 2017-2021.