

DHARMIK DAVE

SOFTWARE ENGINEER

www.linkedin.com/in/dharmikdave

EDUCATION

SOUTHERN METHODIST UNIVERSITY, MAY 2018

Masters of Interactive Technology (Specialization in Programming)

- Worked on an Unreal Engine 4 game and did master's thesis on Voxel Based Global Illumination

RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MAY 2016

Bachelor of Engineering (Information Technology)

- Published technical paper titled "Public cloud integrated with Road Lane Divider System" in Indus Foundation.

WORK EXPERIENCE

CRYSTAL DYNAMICS (EMBRACER GROUP)

JUNE 2018 - NOV 2025

Software Engineer (Associate → III) | Rendering, Gameplay & FX-Oriented Systems

Rendering-Driven World Systems – Unreal Engine 5 (The Future of Tomb Raider)

- Built a data-driven **Dynamic Weather System** where tiled weather textures (RGB = temperature, precipitation, clouds) and wind textures (RG = direction, B = strength) drive localized environment states that feed into audio and FX; collaborated with FX, audio, and design to tune behavior and documented pipelines for technical artists.
- Developed a **weather occlusion & wetness model** that responds to wind direction, strength, and scene geometry to control effects like rain leaking through openings like windows and surface wetness transitions between indoor and outdoor areas; iterated with environment art and FX to hit visual targets and produced reference guides and examples.
- Implemented a **Time of Day System** tied into lighting, supporting multiple phases (dawn/day/dusk/night) and time/phase-based events that drive sky, directional light, and world presentation; worked with lighting and design teams to gather requirements, produced technical specs, and recorded walkthrough videos on how to drive visual changes from time-of-day.

Spatial Data & Support Systems – Unreal Engine 5 (The Future of Tomb Raider)

- Created a **reusable Sector System** to spatially partition the world using volumes/splines and attach subsystem data (including weather and audio) per region, enabling rendering- and FX-adjacent systems to query consistent spatial metadata; collaborated with audio, world, and systems engineers and documented data schemas and authoring workflows.
- Owned the **Markup Subsystem** for traversal data (ledges, grapples, targets) using points and splines, ensuring that visually-complex, kit-bashed geometry remained traversable without manual markup redo; partnered with level design, animation, and environment art and shared usage docs and tutorial videos.
- Re-architected the **markup build into an async pipeline** to support in-editor, real-time rebuilds of traversal splines without hitching, improving iteration for designers and animators; communicated performance and workflow impact via tech demo.

FX System & Engine Work – Proprietary Engine (Marvel's Avengers)

- Owned and extended the proprietary engine's **FX system**, building and maintaining tools and runtime code used by FX teams for gameplay and cinematic effects; partnered daily with Technical Art and FX to gather requirements and shape features.
- Profiled and **optimized FX-heavy scenes** to maintain performance targets, implementing engine-level changes and advising FX authors on best practices; documented optimization techniques and shared them via written guides and in-person sessions.
- Collaborated with FX, Tech Art, and rendering engineers to debug visual issues, improve FX authoring workflows, and ship **stable, performant visuals** across platforms.

INDIVIDUAL PROJECT

VOXEL BASED GLOBAL ILLUMINATION / Master's Thesis

- Achieved **indirect lighting in real time** with help of voxelization and light propagation volumes. Completed on my DirectX enabled personal engine.

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LANGUAGES

C/C++

Unreal Engine C++

DirectX/HLSL

Unreal Engine Blueprint

C#

Python

SOFTWARE

Visual Studio

Unreal Engine 5

Unreal Insights

PIX

Playstation SDK

RenderDoc

SKILLS

Software Engineering

3D Rendering

GPU profiling

Overdraw reduction

Memory optimization

Systems Programming

Engine Programming

Tools Programming

World Simulation

Performance Optimization

Multithreading

Debugging

Motion Warping

Pose Search

Motion Matching

Visual Polish

Code Review

Cross-discipline Collaboration

Technical Documentation

Mentorship