A HOLLOW CITY

Why the Next Revolution in Games Starts from the Inside Out

"This time, the door opens."

THE FIRST TIME I NOTICED

I was soaring through a hyper-detailed metropolis—one of those glistening, photorealistic cities engineered to impress. Skyscrapers shimmered with window reflections. Ambient chatter and distant sirens gave the illusion of life. Every corner hinted at a living world.

But then I landed. I stepped onto a balcony and approached a door.

Nothing happened.

I waited. Pressed buttons. Looked for prompts. But the door wasn't real. It didn't open. It wasn't even a door—it was a texture, a rectangle baked into the illusion of interactivity.

Below me, dozens of buildings. Thousands of windows. None of them open. None of them meant to. It hit me: this city wasn't a world. It was a movie set.

And once I saw the facade, I couldn't unsee it.

THAT'S NOT WHAT I WANT TO BUILD

I don't want to build paintings you can't touch. I don't want glass boxes wrapped in suggestion. I want matter. Substance. Worlds with continuity—where what you see is what you can reach. Where a door opens because it has hinges. Where the wall behind it matters because it can collapse.

I want a world that feels like a place, not a backdrop.

And I want to share that place with something alive.

WHAT IS THAT SHARP RED OBJECT?

In the simulation I'm building, there's an AI companion. It follows the player, observes the world, and learns like a child would—through experience and instruction.

One early moment I imagined: the player walks into a dim room. On a dusty table, a strange red shard catches the light. The AI stops beside them.

"What is that sharp red object on the table?" it asks.

The player studies it. Shrugs. "It's dangerous. Stay away from those."

The AI nods. Files it away.

Hours later, they enter another space. There's a red crystal vase on a pedestal. Decorative. Harmless.

The AI squints.

"That's like the sharp thing."

It grabs the vase and hurls it out the window.

And in that moment—comedic, strange, and perfect—the world feels alive. Not because it's smart. But because it *remembers*.

REBUILDING THE CITY, BRICK BY BRICK

The city I want to build isn't a skyline of polygons. It's not a voxel art diorama either. It's a substance-first, simulation-led space. The kind where geometry and logic aren't layered—they're fused.

In my engine, everything starts with what I call the **substrate**. This is not an abstract data structure—it's the field the world is carved from. The physics engine, the renderer, the AI—they all consult the same source of truth. There are no separate "visual" and "logical" objects. There's only matter, and how it's interpreted.

Signed distance fields form the backbone. Not meshes. Not pre-made assets. Fields. Pressure. Mass. Distance. Solidity.

That means when a floor cracks, the lighting shifts. When a wall collapses, the AI reroutes. When the player drills through a rock, there's a tunnel—not a trick. Not a cutscene. A real hole in a real place.

And when your companion peers inside?

"It's dark in there. Should we go?"

That's not a dialogue tree. That's a decision.

LETTING GO OF THE STAGE

Most games are built like theaters. You walk from one set piece to the next. Even the best open-world titles often rely on tricks—collision boxes, scripted events, assets that only look solid. There's nothing wrong with that. Some of the best experiences I've had were in those worlds.

But what I'm chasing isn't choreography. It's chemistry.

Not: "What should happen next?"

But: "What happens if I do this?"

THE EMERGENCE OF EMOTION

When you build a world where systems react to systems, strange things happen.

An AI drops its flashlight and wanders blindly. A structural support beam gives way during a firefight. A rocket misfires, bounces off a rock, and becomes a new kind of weapon. A block rolls the wrong way and becomes a bridge.

Some of these moments look like bugs. Some are bugs. But many are beautiful. And players remember them not because they were designed—but because they weren't.

In a simulation-first world, these moments *emerge*.

CLOSING THE LOOP

You return to the same city. You step onto the same balcony. The door is there again—but now, it has weight. You push it open. Inside, there's a room. Not a fake one. A space. With walls. With contents. With memory.

Your AI steps beside you. Sees something red.

"That looks like the sharp thing…"

You smile. "It's just a lamp."

But it's too late. The AI yeets it out the window.

And the world reacts.

Glass shatters. Alarms echo. Someone notices. A situation begins—not because it was written, but because it was *possible*.

And for the first time, the city isn't hollow.

It's home.

About the Author

Cameron Bains is a self-taught game developer, mechanical engineer, and simulation designer based in Calgary, Alberta. After years working in environmental compliance, process engineering, and AI tool development, he shifted focus to explore the intersections of simulation, emergent gameplay, and artificial intelligence. He is the solo creator of Astral Trail, a voxel-based space simulation game built from a custom engine designed around unified data substrates and volumetric physics.

Cameron writes about the future of game engines, data-oriented design, and the creative edge where engineering meets play. He believes the next revolution in interactive worlds will be born not from better textures, but from better foundations.

When he's not coding, he's probably planting something, fixing something, or trying to explain to his two young daughters' what raymarching is.