Gaming, Immersive Tech, and AI

By Mr. Mayank Singh – MBAEx Class of 2018

Before I start this piece, I must apologize in advance for a few idiosyncrasies. I do not usually adhere to the Chekhov's Gun principle of narration. Keeping that in mind, let me start with an incident that took place more than a decade ago, when I was stressed about passing a laboratory exam, in my engineering days. As much as I had been fascinated with IC engines and turbo machines (ever since I saw the Batmobile with turbine thrusters in the animated TV series), I had limited conceptual understanding of how they work. Ironically, while I could answer a lot of higher-level questions, it was a basic one that caught me off guard - "Define Heat." Suddenly, I was falling into an abyss. The question was too fundamental in nature. All I could think of was "Heat is energy in transit." but that was not enough. There is a definite way to define 'heat' that eliminates all ambiguity about the concept; and my definition did not talk about important aspects like temperature difference, modes of transfer, time rate etc. Long story short, given enough thought, properly defining something is a doable task, when it comes to concepts in most natural sciences. Once done correctly, the definition or meaning attached to such notions mostly remain unshakable, eternally.

Contrast this with other disciplines that have a social element as an integral part of them, and the story becomes a lot trickier. Take for example another situation. Several years later, I was sitting in a class that was basically 'Marketing 101'. A definition comes up for 'Marketing', "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large". Now be honest with me, does this definition explain 'business' itself? The idea was not perhaps as convoluted as it is today, or at least our basic sense of it was not, when the term 'Marketing' was coined. However, the definition must have changed as our understanding of the concept developed at a deeper level, and even the society around us evolved to what it is in the present state. Long story short, again, there are certain constructs in our daily lives which we hear, talk about, practice, and we are perhaps even part of, that may appear stationary, but in fact they all have an evolving nature.

'Gaming', 'Immersive Tech', and 'AI', the topics of this article too, are ever evolving domains. With time, the expectations from these and the boundaries that define them have been in a flux, and for the foreseeable future would remain to be in a state of flux.

Complexities aside, if I were to explain the term 'Immersive Tech', I would simply put it as a notion of encapsulating video game development technologies, gamification principles, and an array of new age devices/infrastructure, that are being used to deliver enhanced experiences over traditional methods. With this working definition, I can claim that **XRC Studios**, the company I work for, is in the business of providing 'Immersive Tech' solutions.

Even more exciting is the fact that games today do not even have to render all the details in a scene, they can be created by AI systems like DLSS (in Nvidia powered systems) on the fly. Animate entities, and environmental elements are much more dynamic and real with techniques like Ray Tracing and Game Physics. A soon to be launched capability that tech companies are working on, is moving beyond AI image generation and enabling users/creators/game-engines to generate videos and 3D assets on the fly. This, combined with 3D scanning hardware is opening doors for not just easy game creation, but actual digital twin creation for industrial and other use cases such as tourism.

NPCs (non-player AI characters) have become ever livelier with natural language processing. In turn, we are seeing proliferation of these ideas into other domains such as NEWS and Sports broadcasting (AI anchors). All in all, these and several other game development approaches have paved the way for highly realistic phygital experience use cases, for a wide variety of solutioning.

A reasonable doubt that might come to mind would be, whether all these would really be accessible to the masses? This is where companies like ours (**XRC**) have been active. We have taken a browser based WebGL and WebXR approach to bring these capabilities to the wide audience. Others have taken a slightly different approach where cloud computing is put to its best, with pixel streaming being the backbone of the experience. With these, and other similar caveats, owning expensive edge devices would not pose as a bottleneck in the widespread distribution.

These recent years have been particularly exciting for at least people of my generation (nerdy kids of the 80s and 90s to be more precise). Not because we are witnessing engineering and scientific marvels that are beyond imagination, but because things that we only enjoyed in pop-culture are coming to life as we speak. I remember that in the year 1990, Arnold Schwarzenegger emerged with the movie *Total Recall*. The movie had elements like: Virtual reality, Thin panel displays, Location tracking/navigation, Video calling, Self-driving cars, X Ray Security checks, Space colonization and terraforming, among other sci-fi ideas, incorporated into an action thriller. Fast forward 30 years into the future, all these ideas have manifested themselves in some form, to a certain degree, in our present society. And the promise of technology is that things, at least in the immersive tech and AI space (if not space exploration or bioengineering), would get even more interesting, as we already see breakthroughs in areas like Quantum Computing and Wetware Computers on the horizon.

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