

Pixels and Profits: The future of AI-driven gaming markets

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Nvidia CEO Jensen Huang, in a recent Q&A session in March 2024, envisioned that video games with real-time content generated by AI are only 5-10 years away. This means that each of the 6-7 million polygons, a standard for modern AAA games, will be generated by deep neural networks 60 times a second on your screen, providing you with a novel experience each time you fire up your gaming device! The technology can prove to be disruptive to the 230-billion-dollar video game industry as generative game engines not only make each playthrough unique but also greatly reduce the game development workload, lowering cost and enabling game studios to focus on the narrative and creative design. While AI can render short videos, the computer resources and accuracy required to generate real-time game-level design and maintain it for the duration of an average gaming session without hallucinations seem unrealistic at best.

However, technological innovations continue to surprise us. Days before writing this article, we find that the gaming community's favorite ultra-violent video game - DOOM, rips and tears once again, with innovation as it becomes the first 'first-person shooter' trained on a generative diffusion model GamenGen (pronounced: game-engine). Developed by researchers at Google and Tel Aviv University, it is the first game engine powered entirely by a neural model that enables real-time interaction with a complex environment over long trajectories at high quality.

The model reduces auto-regressive drift, which leads to the degradation of generated frames by using noise augmentation (adding a certain amount of noise to the training model, which preserves frame quality). This means the generated gameplay

is very similar to the actual game, with only 58-60% of human-raters (surveyed) able to distinguish between the two (Figure 1).



Figure 1

The challenge of generating enough computing power to unlock such new possibilities with AI is already being addressed, with Nvidia leading the race to the top with its Blackwell GPU. Tech-giant Capgemini further argues that Moore's Law is undergoing a transformation fueled by advancements in semiconductor manufacturing technology and shall hold for the foreseeable future. Adding to it, the video games market is forecasted to grow at an annual rate of 8.76% between 2024 and 2027, resulting in a projected market volume of US\$363.20bn by 2027 (Figure 2)

It is not hard to imagine that the market growth and technological advancement mix will create a massive value proposition for businesses. This essentially means the generation of new supply chains, distribution channels and platform development, investment opportunities, intellectual property, business models, integrated marketing strategies, media content, and skilled human capital requirement – an opportunity that must not be ignored by anyone who is in the business.



Figure 2

India's Gaming-landscape Transformation

Asian games market intelligence experts Niko Partners posit that India's gaming industry will grow at a 5-year CAGR of 11%, catching up to the developed markets of Asia - China and Japan - by 2028, making the Indian gaming community an untapped consumer base offering US\$1.40bn in revenue. Attributing to low disposable income, "Mobile games in India will continue to dominate the gaming pie by spending, accounting for 77.9% of total revenue, followed by PC (14.5%) and console (7.7%)" (Source: India Games Market Reports Series: NIKO Partners). Hyperscalers enable development studios to build & deploy gaming products and assets while being cost-effective to tap the growing consumer base. The Indian government's Semiconductor Mission (Semicon India) scheme further accentuates the likelihood of the emerging market for video games and processing/computing capabilities by supporting up to 50% of project cost for setting up semiconductor fabs in India, on a pari-passu basis upon approval. Can we conclude that businesses should invest in mobile game development capabilities? It turns out that 'gaming' is about more than gameplay; as the Gaming report 2024

by Bain & Company puts it, Gamers collaborate, socialize, create UGC, shop, and consume game-related content. They like to have interoperability across devices and single marketplaces. This creates a more significant opportunity not only for core gaming software but also for products targeted at the millennial and Gen-Z demographic. Instead of focusing solely on cultivating new expertise to compete with global leaders, Indian businesses must also gear up to scale with the rising gaming industry through complimentary offerings, which may already have a better rate of return than the current market risk.

We finally ask a fundamental question: Does gaming increase welfare?

Is gaming any good? – During our childhood, spending time glued to the screen was no less than a bane to our parents. Video games have been accused of non-productivity, violence and overall degradation of brain power, yet technological milestones such as CUDA (parallel processing), CGI innovation, AR & VR, and motion capture stem from video games. Gamers employ quick reflexes, split-second decision-making, resource management, profit maximization and teamwork to

achieve their goals and together stand firm.

Illustrating this, is Nier: Automata – a third person action RPG – that challenges the player with an offer to prevail against insurmountable odds in its final battle, should you accept the offer, all your game progress will be lost but other players who sacrificed their gameplay before you come to your aid, suddenly, making the fight much easier! (Figure 3)

This captures the very essence of the video game community perfectly: a group of no-good wallflowers who come together to achieve great things, and many among us will be tomorrow's leaders. Therefore, this article's objective was to make incumbent business leaders cognizant of changes in emergent gaming industry to initiate a reckoning to survive in the era ushered in by video-game community.

PS: The title of this article is AI generated, in the spirit of granting an AI model the right to name a piece written on it.

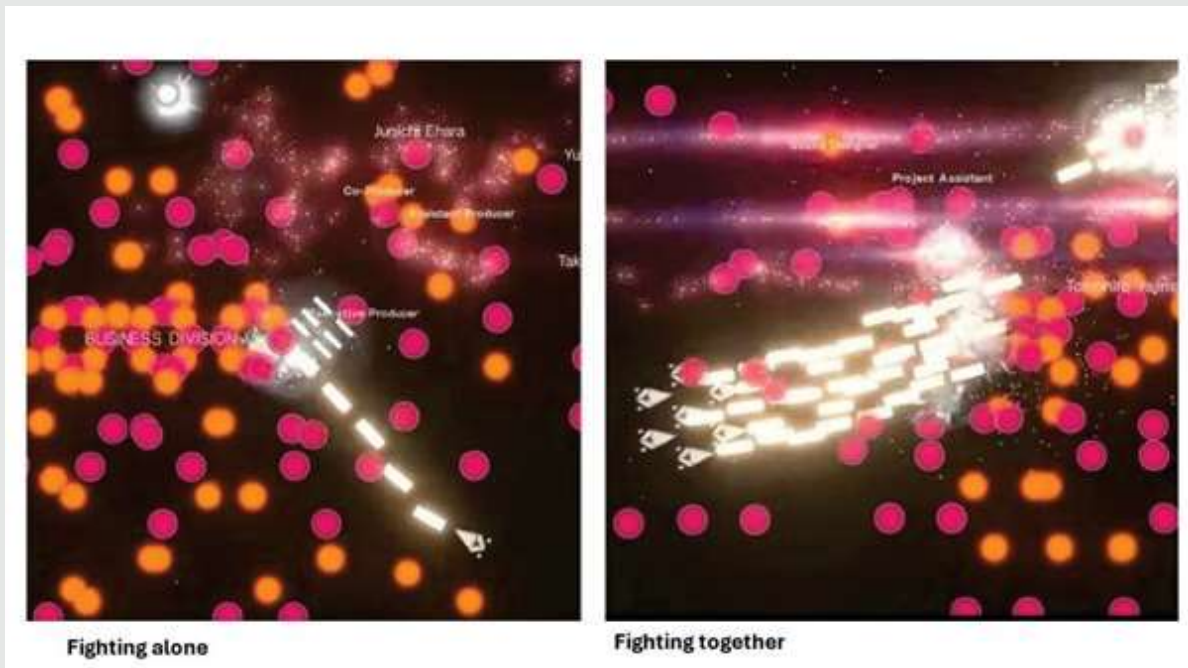


Figure 3



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