WHITEPAPER

Ready, Steady, Avatar! Unlock the Power of AI in the Metaverse

fractal

Significant opportunities for AI in the metaverse

The metaverse is a collaborative, immersive, and persistent virtual space that bridges digital realities with the physical world to create an unprecedented sense of agency, social presence, shared spatial awareness, and economic opportunity.

But the impact of the metaverse has yet to reach its peak. Artificial intelligence is poised to improve and expand on what the metaverse can offer and usher in a new wave of innovation.

> Gartner Predicts 25% of People Will Spend At Least One Hour Per Day in the Metaverse by 2026[1]

An AI-powered metaverse transports you to a new world with stunning landscapes and vibrant cities. An AI exoskeleton adjusts the movement of your body to match those of your chosen avatar.

As you explore further, an AI-powered digital assistant — with the personality of Captain Jack Sparrow — guides you with quirky, tailored recommendations. Internet of Things (IoT) data brings elements from your physical surroundings, and gaming difficulty levels are adjusted according to skill. Rewards points can be redeemed for various types of commerce, and an inclusive user interface (UI) ensures everyone has a positive experience regardless of their abilities.

Image recognition technology assists visually impaired players, while automatic translation enables hard-of-hearing people to communicate efficiently.
Marveling how far technology has come, you return home with a flick of your wrist, feeling inspired by the limitless possibilities that artificial intelligence has enabled in the metaverse!

Hyper-realistic landscape and experience generation

Generative AI is rapidly becoming a significant enabler in metaverse landscape generation. It can generate realistic avatars, automate landscape creation, and even create realistic images from text descriptions or simple drawings with OpenAI's DALL-E[2] and NVIDIA's GauGAN2.[3]

AI can also adjust difficulty modes in gaming according to a player's skill, provide personalized virtual sensory experiences tailored to specific user disabilities, help students by changing learning paths and recommending additional training based on their progress, and provide users with customized sports plans by analyzing real-time analytics from IoT devices.

Immersive experiments at scale

By leveraging the metaverse, companies can employ AI-driven experimentation and testing to lower their risk levels while simultaneously cutting down on costs when launching new projects. Enterprises can better understand consumer behavior through immersive, interactive environments facilitating hot-state decision-making. This revolutionary approach yields more meaningful insights than conventional market research and online purchases alone[4].

Through this platform, researchers can learn how shoppers react to changes — such as product packaging, look and feel, and display campaigns — in real time to implement them quickly and efficiently in the physical world. Moreover, AI tools within the metaverse allow businesses to gain insights into loyalty, churn prevention, and how specific demographics respond differently to campaigns or displays. This empowers them to make more informed product and marketing strategy decisions.

Inclusive and equitable experiences

Those at the forefront of virtual reality innovation should prioritize creating an inclusive metaverse (that celebrates diversity) through artificial intelligence. AI can help people with disabilities access various elements of the digital world. For example, image recognition and automatic translation enable visually impaired and hard-of-hearing individuals to interact with the metaverse easily[5].

Moreover, specially-abled persons can also experience the exciting possibilities of the metaverse thanks to modern technology like intelligent exoskeletons and brain-computer interfaces. Through summarization and content relevance features, AI helps disadvantaged groups (in terms of education or language) access quality information. An ethical review should guide feature selection and model development to ensure fairness, preventing potential bias. AI models should be transparent and observable to avoid misuse and mitigate hate speech, particularly those used for conversation and content moderation. These methods can ensure equal access to the metaverse for individuals of all backgrounds.

> "By 2026, 30% of the organizations in the world will have products and services ready for metaverse."
>
> Marty Resnick, Research VP at Gartner[6]

Operations scaling with AI Ops

The use of AI Ops (Artificial Intelligence for IT Operations) in the metaverse has significant potential for scaling operations. AI ops can automate mundane tasks like network maintenance, application deployment, and monitoring, resulting in faster response times and scalability. Additionally, AI ops bolster security and reliability by constantly monitoring for maintenance and security issues and proactively taking measures to prevent them. It can even be configured to detect potential threats or anomalies.

As AI technology advances, its applications in the metaverse will become more powerful and beneficial for businesses aiming to grow their operations without sacrificing quality or service availability.

Building Digital Twins

Futurist Bernard Marr described a digital twin as a digital replica of something in the physical world. Through IoT sensors and innovative technology, digital twins are created — allowing users to bridge the gaps between physical objects in our world and their virtual counterparts. AI plays a key role in creating digital twins, collecting real-time data to form virtual replicas through algorithms and photogrammetry. For example, automated roadway analysis is a process that streamlines road inspections with visuals derived from collected data, saving time and money while providing insights into potential maintenance issues.

AI can also create "what if" scenarios in virtual environments before physical implementation. For example, city planners can use digital twins on the metaverse to assess bridge renovations without committing to an actual build. Digital twins are used in product design, manufacturing processes, and aerospace flight simulations to save time spent developing physical models by predicting fail points digitally before they occur. We have already seen examples of this in the aviation industry, where aerospace flight simulations were created to avoid costly delays.

In addition, AI analytics and predictive models provide a deeper understanding of infrastructure systems, such as predicting traffic patterns or air quality levels. With its capacity for quickly processing vast amounts of data, AI can identify correlations between various factors faster than humans ever could. This ability is an invaluable asset when creating realistic digital twins that accurately reflect our physical infrastructure systems so that informed decisions can be made regarding future investments or renovations.

Estimates indicate that the economic contribution of the global metaverse could be valued at more than $3 trillion by 2031[7]

Bottlenecks to overcome

The potential abuses of AI in the metaverse are a growing concern. As more people join this digital world, there is an increasing risk of malicious or unethical behavior from human and AI-powered entities. It is essential to establish clear rules and guidelines for the fair use of AI technologies in the metaverse and to protect users from harm.

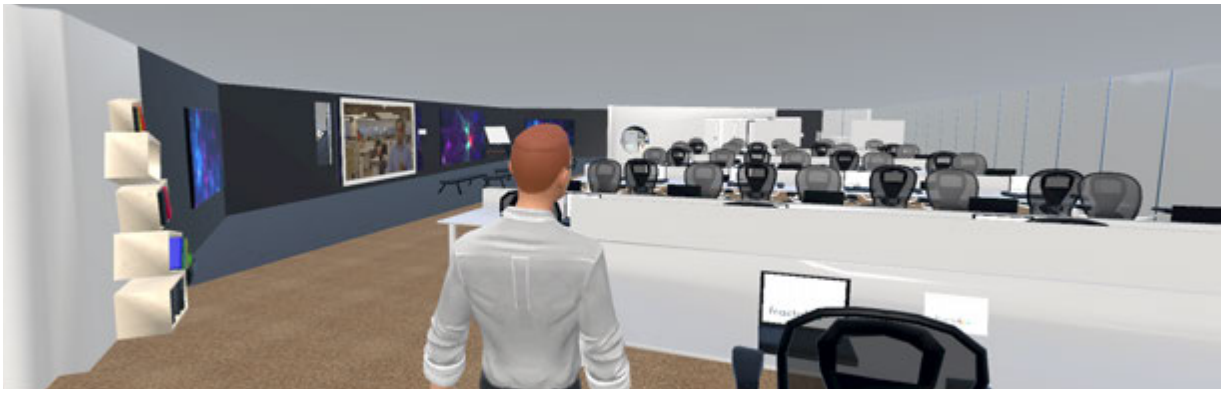
At its core, the challenge lies in creating a safe environment where people can interact freely with others without fear of being exploited or harassed. This means establishing mechanisms for user authentication, consent management, and data security so that AI can be used responsibly to train models and create metaverse content. By doing so, we can ensure that no personal information is compromised or misused while protecting users from deepfake attacks and other forms of deception.

In addition to these safety measures, it is essential to address issues related to copyright ownership when using AI-generated content in the metaverse. It must be clear who holds the rights to such content and how profits can be distributed fairly among those involved.

Fractal's role in your metaverse journey

At Fractal, we aim to unlock the metaverse's full potential for your enterprise. Our experimentation services provide a hands-on approach to solving real business problems and creating value. Our Strategy Labs leverage human-centered design, behavioral science, and foresight tools to develop roadmaps for success in the metaverse, identify opportunities, and devise prototypes and MVPs for future-state solutions. Additionally, we offer Advisory Services to comprehensively equip clients with the necessary tools and knowledge to make informed decisions within this space. This includes establishing an advisory council and providing evangelization workshops and training sessions covering essential business opportunities.

Here's a sneak peek into Fractal's metaverse office, a space that can be used for new joiner onboarding, team collaboration, leadership connects, and much more! Spaces like these can help organizations reinforce their core culture and values in the hybrid work era.



References:
https://www.itnews.com.au/news/airservices-eyes-fully-fledged-digital-replica-of-australian-airspace-576891
https://parametric-architecture.com/the-relevance-of-digital-twins-for-building-future-cities/

[1] https://www.gartner.com/en/newsroom/press-releases/2022-02-07-gartner-predicts-25-percent-of-people-will-spend-at-least-one-hour-per-day-in-the-metaverse-by-2026
[2] https://openai.com/dall-e-2/
[3] https://www.nvidia.com/en-us/research/ai-demos/
[4] Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy, International Journal of Information Management, Volume 66, 2022, 102542, ISSN 0268-4012 https://www.sciencedirect.com/science/article/pii/S0268401222000767
[5] Ibid (Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy, International Journal of Information Management, Volume 66, 2022, 102542, ISSN 0268-4012 https://www.sciencedirect.com/science/article/pii/S0268401222000767)
[6] https://www.gartner.com/en/newsroom/press-releases/2022-02-07-gartner-predicts-25-percent-of-people-will-spend-at-least-one-hour-per-day-in-the-metaverse-by-2026
[7] https://www.analysisgroup.com/globalassets/insights/publishing/2022-the-potential-global-economic-impact-of-the-metaverse.pdf

fractal dimension

We believe complex problems need to be looked at through multiple lenses simultaneously to be grasped. With the new lens new dimensions emerge, thus making complexity more evident and solvable.

How is Fractal Dimension set up to do it?

We identify complex and unstructured problem themes in the industry that are relevant. We invest in building expertise and a dimensionalized point of view around it.

We engage clients via 'slow-thinking' workshops and co-creation jams to curate our perspective for their problem. We invest in architecting an end-to-end state-change program.

We partner with client teams at Fractal to deploy cross-functional solutions and support them in helping clients realize value ROI.

Want to find out more on how our approach can help your business? Reach out today at dimension@fractal.ai

Our experts

Vineet Nandkishore
Senior Consultant, Strategic Center

Prajod Vettiyattil
Principal Architect, Strategic Center

Enable better decisions with Fractal

Fractal is one of the most prominent providers of Artificial Intelligence to Fortune 500® companies. Fractal's vision is to power every human decision in the enterprise, and bring AI, engineering, and design to help the world's most admired companies.

Fractal's businesses include Crux Intelligence (AI driven business intelligence), Eugenie.ai (AI for sustainability), Asper.ai (AI for revenue growth management) and Senseforth.ai (conversational AI for sales and customer service). Fractal incubated Qure.ai, a leading player in healthcare AI for detecting Tuberculosis and Lung cancer.

Fractal currently has 4000+ employees across 16 global locations, including the United States, UK, Ukraine, India, Singapore, and Australia. Fractal has been recognized as 'Great Workplace' and 'India's Best Workplaces for Women' in the top 100 (large) category by The Great Place to Work® Institute; featured as a leader in Customer Analytics Service Providers Wave™ 2021, Computer Vision Consultancies Wave™ 2020 & Specialized Insights Service Providers Wave™ 2020 by Forrester Research Inc., a leader in Analytics & AI Services Specialists Peak Matrix 2022 by Everest Group and recognized as an 'Honorable Vendor' in 2022 Magic Quadrant™ for data & analytics by Gartner Inc. For more information, visit fractal.ai

Corporate Headquarters
Suite 76J,
One World Trade Center, New York,
NY 10007

Get in touch