Technological Roadmap of the Future Trend of Metaverse based on IoT, Blockchain, and AI Techniques in Metaverse Education


* Department of Computer Engineering/Institute of Digital Anti-Aging Healthcare/u-HARC, Inje University, South Korea

arifulislamro@gmail.com, ali.athar1401@gmail.com, poupiamand2@gmail.com, sherazmohsin257@gmail.com, imtiyaj.dream@gmail.com & heeki@inje.ac.kr

Abstract — Metaverse is defined as a collection of technology gadgets and metaverse connected to IoT, Blockchain, Artificial Intelligence, and all the other tech industries including educational. In particular, the big success of the metaverse in the recent era is in the educational sector, metaverse resolved many difficulties in the education domain. Especially, in the situation of covid 19 people continued there all the educational things virtually using metaverse technologies. At this moment it was only a sector that was not hampered by the reason of covid 19, everyone did their educational work online instead of offline. Metaverse uses artificial intelligence and IoT technology to build a digital virtual world where you can safely and freely engage in social and educational activities that transcend the limits of the real world, and the application of these latest technologies will be expedited. In this paper, we are going to introduce the future of the metaverse, including its history, explanation, and shared features. Then, we will describe what technologies the metaverse is using and metaverse potentiality in education, the metaverse in education is clearly defined, and a detailed framework of the metaverse in education is proposed, along with in-depth discussions of its features.

Keyword — Metaverse education, Artificial intelligence, Mixed reality, Metaverse, Virtual Education.

Md Ariful Islam Mozumder was born in Bangladesh 1992, received his BSc in Computer Science & Engineering from the World University of Bangladesh, and an MS degree in Artificial Intelligence from the Inje University South Korea in 2022. Currently, he is pursuing his Ph.D. in the Institute of Digital Anti-Aging Healthcare from Inje University. He has previously worked on multiple real-life projects related to computer vision and data sciences. His research interest aligns with Computer Vision, Artificial Intelligence, Metaverse, Signal Processing, Algorithms, Blockchain, and Medical Image Processing.

Ali Athar was born in Pakistan 1988, received his MS degree in Software Engineering from the National University of Science and Technology (NUST) Pakistan in 2017. Currently he is pursuing his Ph.D. at the Institute of Digital Anti-aging and healthcare at Inje University. His research interest’s area includes Metaverse, Text mining, Image Processing, Deep Learning, and Machine Learning.

Tagne Poupi Theodore Armand was born in Cameroon 1992, received Msc in information System and networking at ICT university USA Cameroon Campus in 2021. Currently, he is a Ph.D. research scholar at the Institute of Digital Anti-aging and healthcare at Inje University. His research interest’s area includes Metaverse, Image Processing, Deep Learning, and Machine Learning.

Muhammad Mohsan Sheeraz was born in Pakistan 1996, received his BS in Computer Science from Government College University Faisalabad of Pakistan in 2019. Currently, he is pursuing his Master's in the Institute of Digital Anti-Aging Healthcare from Inje University. His research interest area is Blockchain in healthcare.

Shah Muhammad Imtiyaj Uddin was born in Bangladesh 1994, received his BSc in Computer Science & Engineering from the World University of Bangladesh in 2017. Currently, he is pursuing his Master's in the Institute of Digital Anti-Aging Healthcare from Inje University. His research interest’s area includes Computer Vision, Machine Learning, and Deep Learning.

Hee-Cheol Kim BSc at the Department of Mathematics, MSc at the Department of Computer Science in SoGang University in Korea, and Ph.D. at Numerical Analysis and Computing Science, Stockholm University in Sweden. He is a professor and Head of the Institute of Digital Anti-aging Healthcare, Inje University, South Korea. His research interests include Medical Image Processing, Anti-Aging Healthcare Computing, Human Computer Interaction, Software Engineering, Machine learning, Metaverse, Bio Informatics.