A laptop screen is shown in a dark, dimly lit environment. The screen displays a data visualization interface. At the top, there is a line graph with a blue line showing an upward trend, with a label '19 av.' below it. Below the graph is a pie chart with a blue and green segment. The text 'New Visitor' and 'Returning Visitor' is visible near the pie chart. The main title 'Metaverse in Education' is written in large white font across the middle of the screen, with the subtitle 'Vision, Opportunities, and Challenges' below it. The laptop keyboard is partially visible at the bottom right.

Metaverse in Education

Vision, Opportunities, and Challenges

By: Nidal Khalifeh

Index

1. Introduction
2. Metaverse in Education Characteristics
3. How the Metaverse Changes Education?
4. Challenges & Issues
5. Conclusion



Introduction

The concept of Metaverse was first occurred in 1992 and drew attention with its movie Ready Player One. Metaverse is a virtual world and closely related to the real life

A close-up photograph of a person's hands using a stylus on a tablet. The background is blurred, showing some bokeh lights. The right side of the image is overlaid with a solid blue color.

Introduction

Metaverse consists of many kinds of technologies, e.g., big data, interaction, artificial intelligence, game design, Internet computing, Internet of Things, and blockchain.

A close-up photograph of a person's hands using a stylus on a tablet. The background is blurred, showing bokeh lights. The text 'Introduction' is overlaid in white on the left side of the image.

Introduction

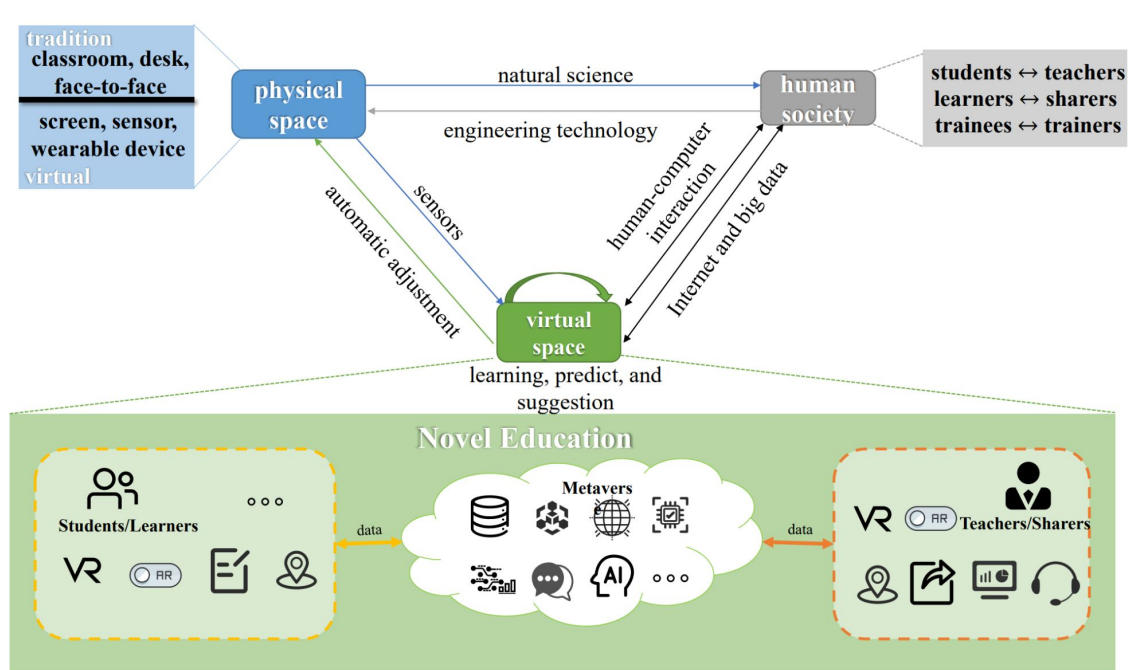
A 3D-based virtual world in which daily life is done by avatars reflecting the actual individuals

A close-up photograph of a person's hands, wearing a dark long-sleeved shirt, working on a technical drawing or blueprint. The hands are positioned over a large sheet of paper, with one hand holding a pen or pencil. The background is blurred, showing some bokeh light effects. The overall scene is dimly lit, with the focus on the hands and the drawing.

Introduction

A world in which virtual and physical realities interact and co-evolve, and in which social, economic, and cultural activities are carried out to generate value

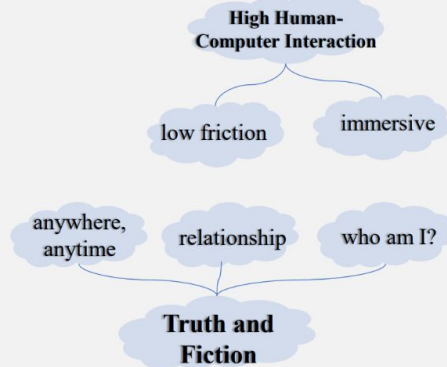
Metaverse in Education



Metaverse in Education

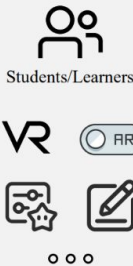
Metaverse

Decentration



Education Metaverse Environment

personal learning environment



personal teaching environment



Education

Narrow sense

organized education activities (e.g., school)

social practice activities for physical and mental development (e.g., lifelong learning)

Generalized

How Metaverse Changed Education



See-What-I-See
Novel Relationships
Equipment Installation
Stable and Smooth
Anytime and Anywhere



Non-Discrimination
Qualification
Entertaining
Immersive Learning
Safety and Compliance



Humanization
Maintenance
Freely Design
Big Data Analytics
Sapiential Suggestions



Visit/Review Accidents
Enhance Physical Products
Immersive Experience
Travel History Events Safety
and Low Cost

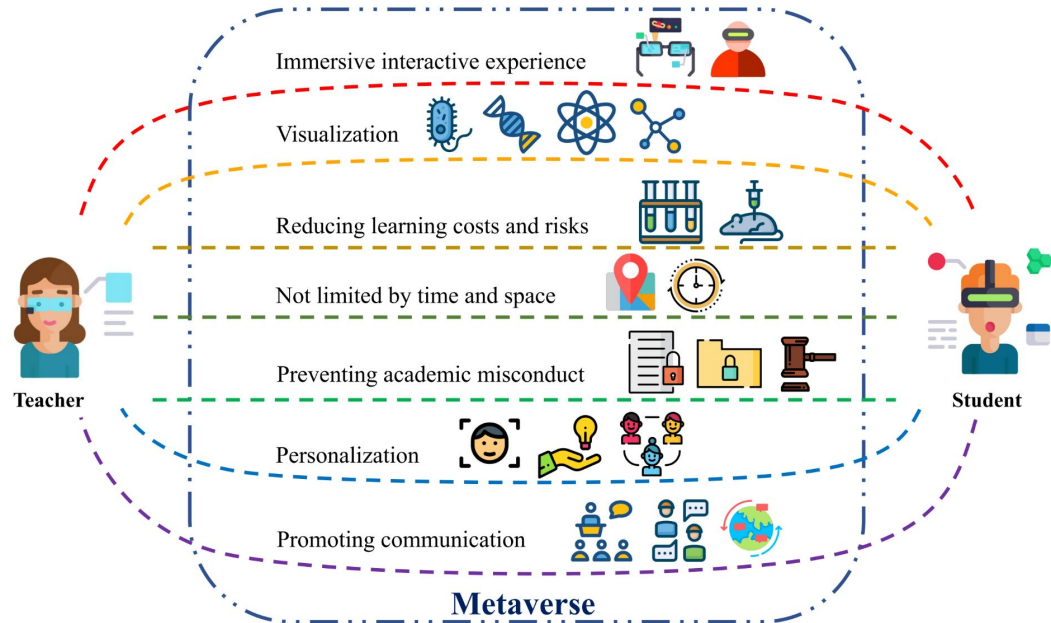


Ecosystems
Novel Relationships
Business Conflicts
Harmonized standards
Strategy and Vision









Games
Live Events
Story Telling
Location Based
Digital Reality Experiences

How Metaverse Changed Education



Metaverse in Education Examples

Company	Website	Features	Applications
 ROBLOX	https://roblox.com/	<ul style="list-style-type: none"> • Active community • Game creation 	<ul style="list-style-type: none"> • Learning by experience games
 STRIVR	https://www.strivr.com/	<ul style="list-style-type: none"> • 360° VR perspective • Interactive VR 	<ul style="list-style-type: none"> • Enterprise VR training
 Jig Space	https://www.jig.space/	<ul style="list-style-type: none"> • Universal AR • 3D presentation • Mobile application 	<ul style="list-style-type: none"> • Various interactive 3D models for learning
 Gather	https://www.gather.town/	<ul style="list-style-type: none"> • Video chat platform • Collaborative work 	<ul style="list-style-type: none"> • Virtual school experience
 XIRANG	https://vr.baidu.com/product/xirang	<ul style="list-style-type: none"> • Permanent storage • Multi-terminal compatibility 	<ul style="list-style-type: none"> • VR K12 classroom • VR university laboratory
 REWORLD™	https://www.reworlder.com/	<ul style="list-style-type: none"> • 3D physics engine • No-code authoring 	<ul style="list-style-type: none"> • Simulate the regulation of mechanics of real world

An aerial photograph of a city skyline at dusk or dawn. The sky is a mix of dark blues and oranges. The city is densely packed with skyscrapers, many of which have their lights on. The Empire State Building is prominent in the center, with its top lit in red and green. Other notable buildings include the One World Trade Center on the right and the Freedom Tower in the distance. The text "Challenges & Issues" is overlaid in a large, white, sans-serif font across the middle of the image.

Challenges & Issues

- 1. standard-setting,
- 2. management costs,
- 3. balancing of interests,
- 4.



- 1. DDos attack,
- 2. information leakage,
- 3. authentication credentials,
- 4.

- 1. different races,
- 2. different skin colors,
- 3. different regions,
- 4.

- 1. content (e.g., game),
- 2. usage time,
- 3.

- 1. network and computing,
- 2. artificial intelligence,
- 3. immersive interactive technology,
- 4.

Conclusion

- Metaverse is new and evolving
- Metaverse is as good as the technology
- Technology is as good as its users
- Content is king
- Contextual learning must be the focus
- Metaverse will not build itself, or will it?

Thank you



Ref: [2211.14951.pdf \(arxiv.org\)](#)