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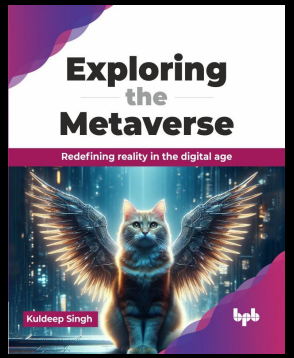
Reskill

Azure AI Fostering Sense Within XR World

Kuldeep Singh

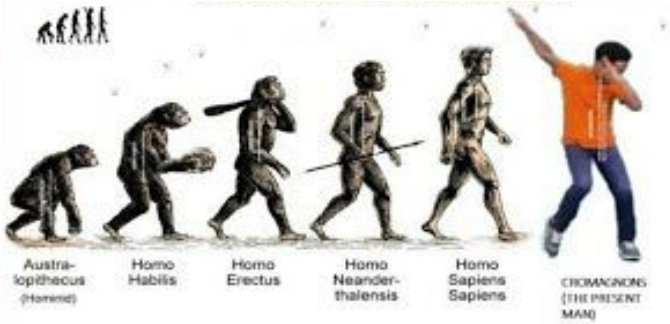
Head of XR Practice

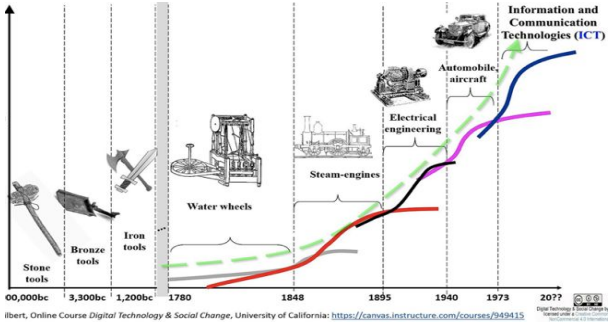
thoughtworks



thinkuldeep.com

Reverse it





⏮ Azure AI ⏪ Fostering ⏪ Sense Within ⏪ XR World ◀

XR World

Sensing in XR World

Role of AI in XR

Azure AI

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XR World

Extended Real World - Reality redefined

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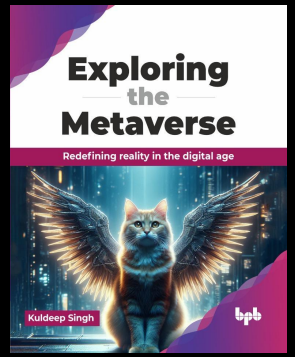
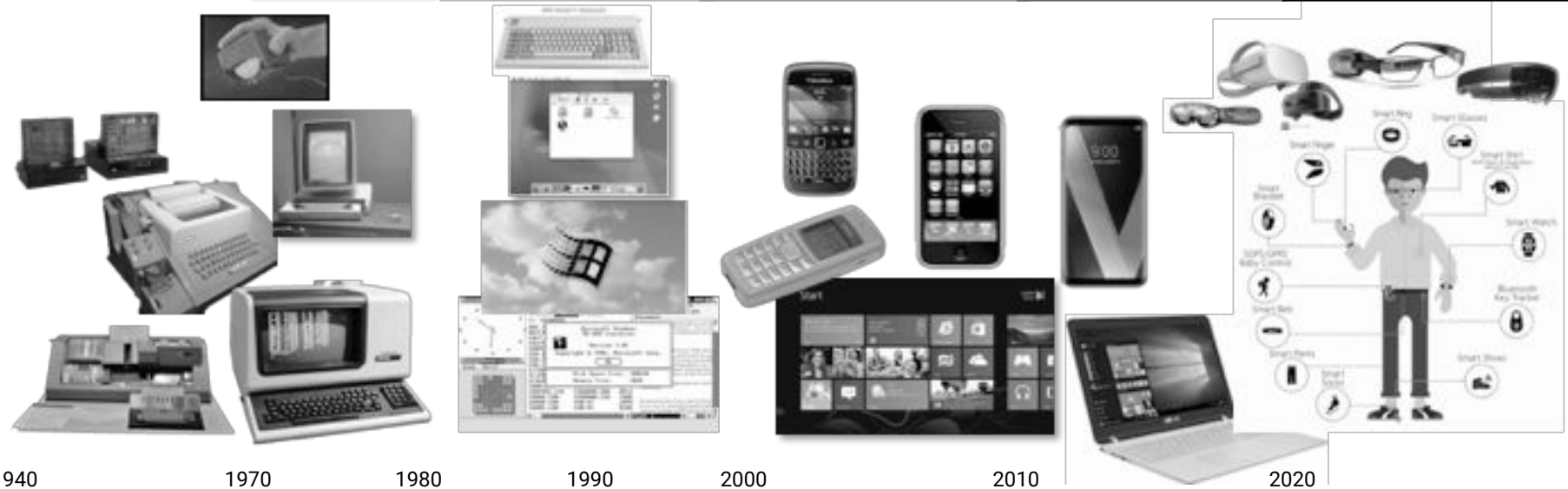



Linden Lab
GOLD
WINNER
GOLD
WINNER
SILVER
SILVER

History and Future

No Interactions	Attentive	WYSIWYG	Seamless transition	Touch and Feel	Immersive

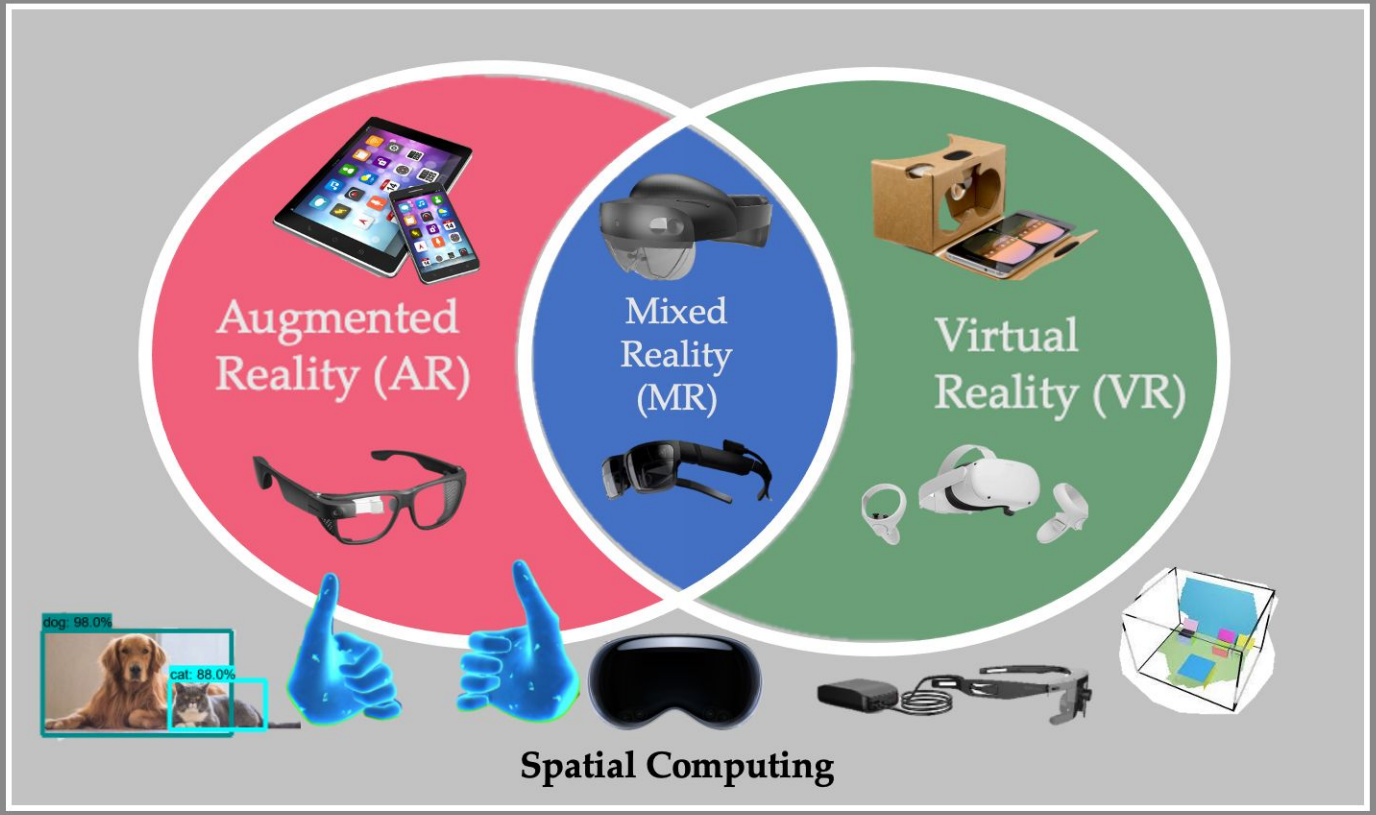


1940 1970 1980 1990 2000 2010 2020

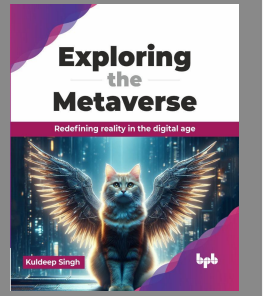
Batch Age	CLI Age	GUI Age	Internet Age	Interactions Age	AI Age
		Web 1.0 - ReadOnly	Web 2.0 - Participative		Web 3.0 - Execute
		Situated Servers	Cloud		Spatial, Edge, 5G
		SQL, Files	NoSQL, Unstructured		Distributed Data, Web3
					Metaverse?


FREE GUY
OFFICIAL
TRAILER

eXtended Reality (XR)



Chapter 3

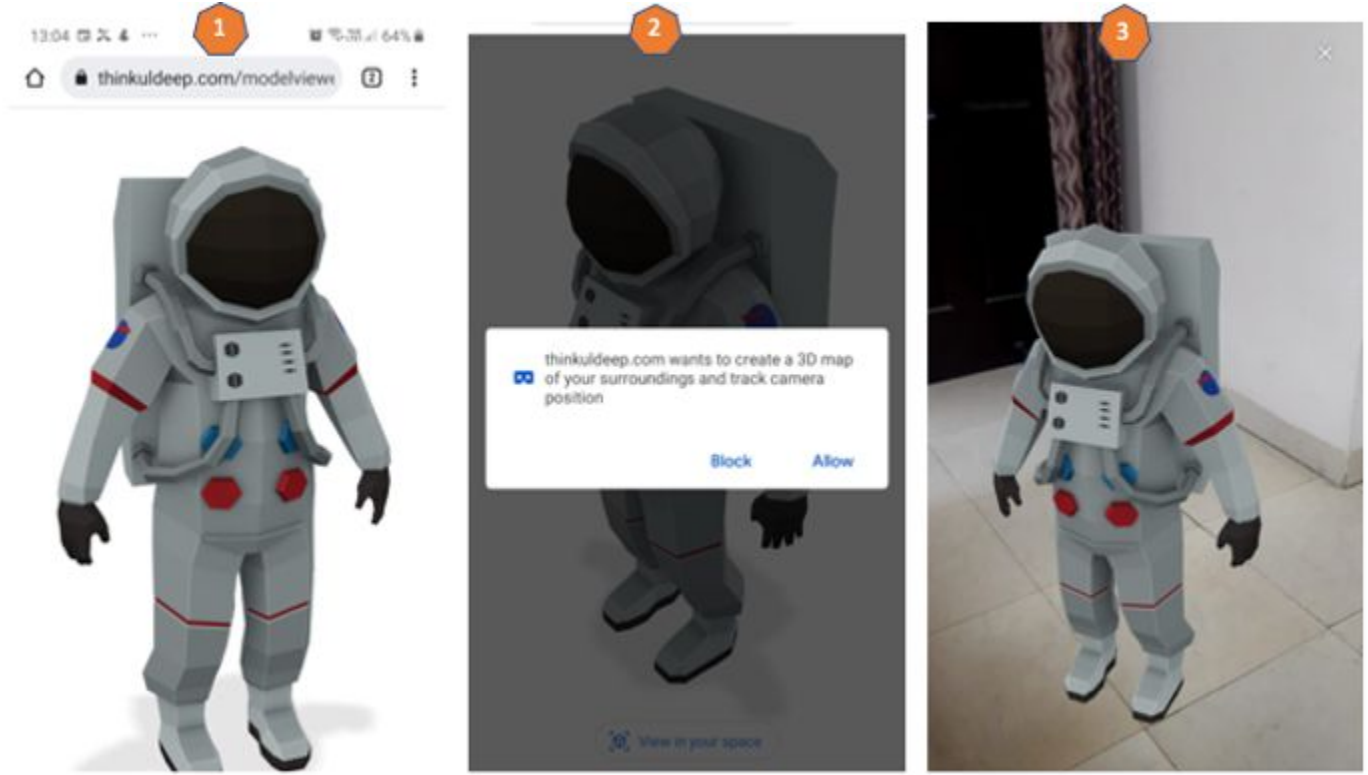



SHEIN

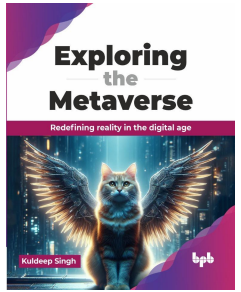
Chapter 3

Exploring
the
Metaverse
Redefining reality in the digital age
Kuldeep Singh
bpb

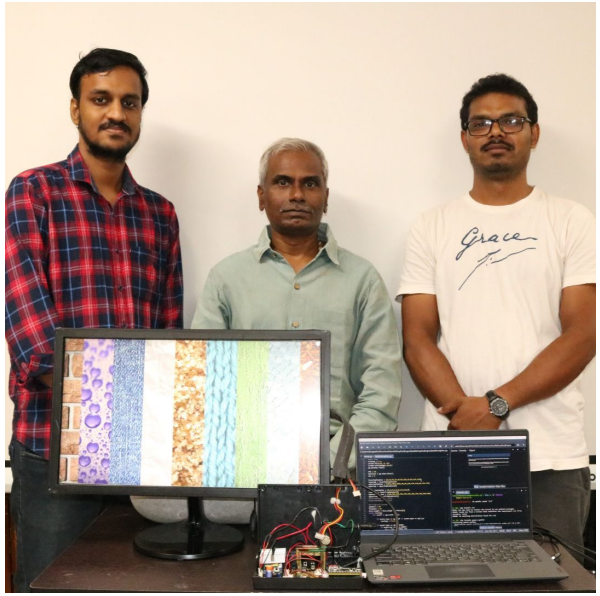
WebXR

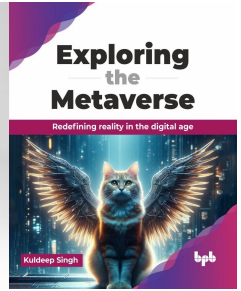


https://thinkuldeep.com/modelviewer/

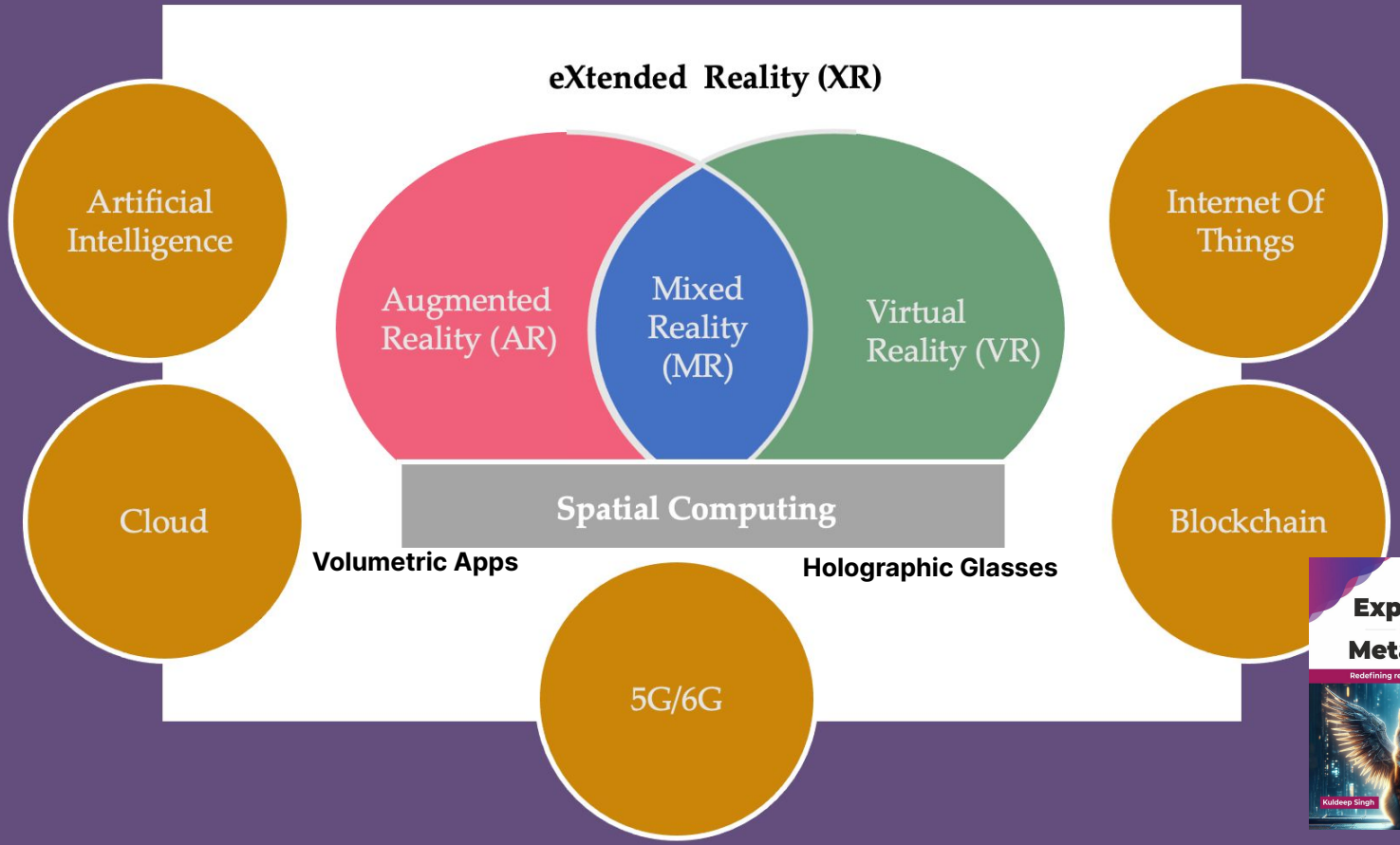



teslasuit

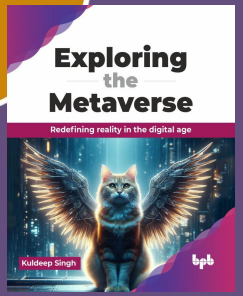



Exploring
the
Metaverse
Redefining reality in the digital age
Kuldeep Singh
bpb

Metaverse



Part 2



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Sensing in XR World

Making sense of the XR World

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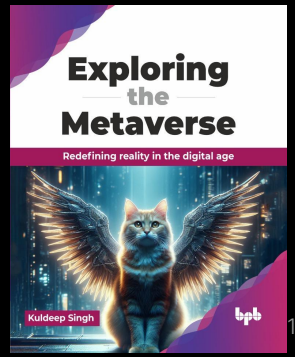
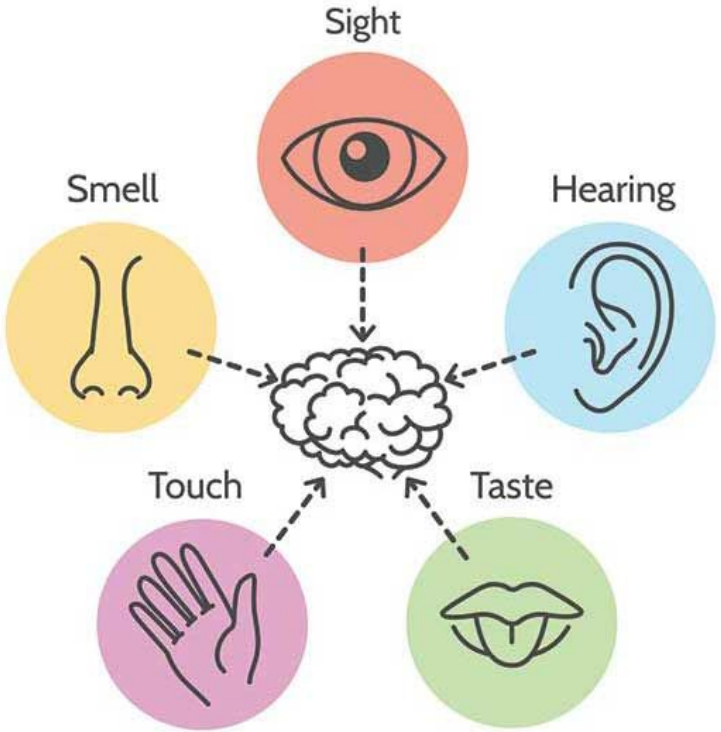


How do we make senses of the world?



Depth Sensing, Motion tracking

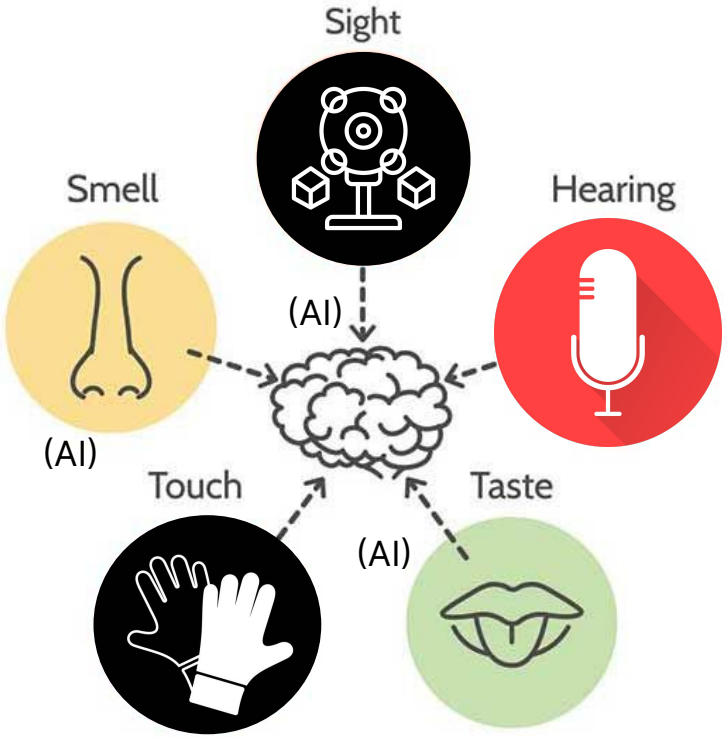
Object detection, Voice recognition

Motion tracking

Physical and psychological safety perception


Golden Stripes

How do we make senses of the XR world?



Depth Sensing, Motion tracking
(Lidar, Image to 3D, NeRF, SLAM ...)

Object detection, Voice Recognition

Motion tracking
(SLAM, Physics Engine)

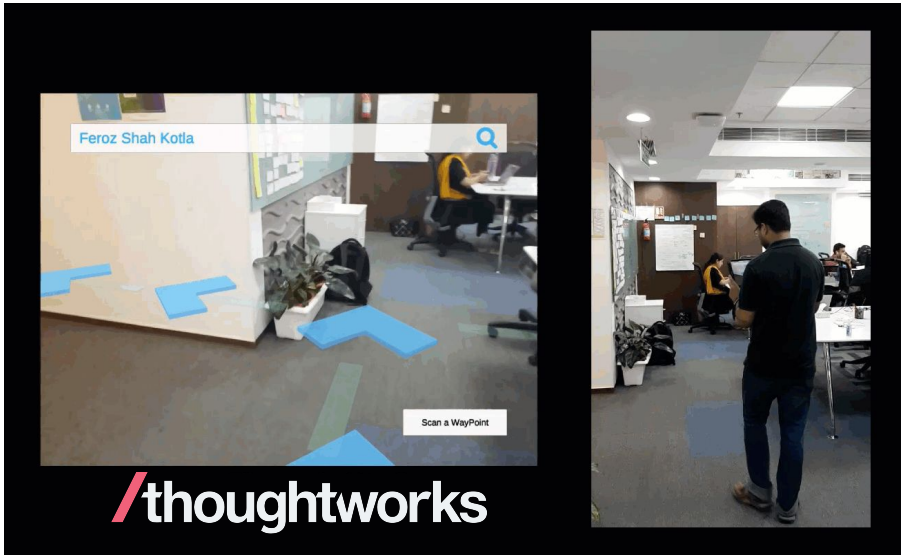
Physical and psychological safety
perception (Sensors, Actuators, BCI - AI)

Space Aware Apps

Spatial Computing

Volumetric Apps

Spatial Anchor, World Coordinates



Map and navigation, optimal routing

Indoor, Outdoor, City Scale, beyond experiences. Social hotspot, targeted marketing and more.

Measure, Tracking Area, Volume Estimation, Progress.

Building Equity with Technology

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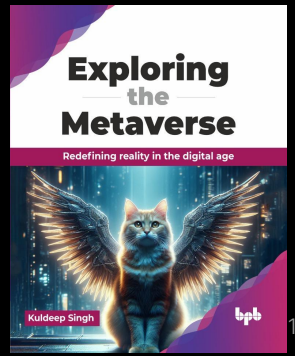
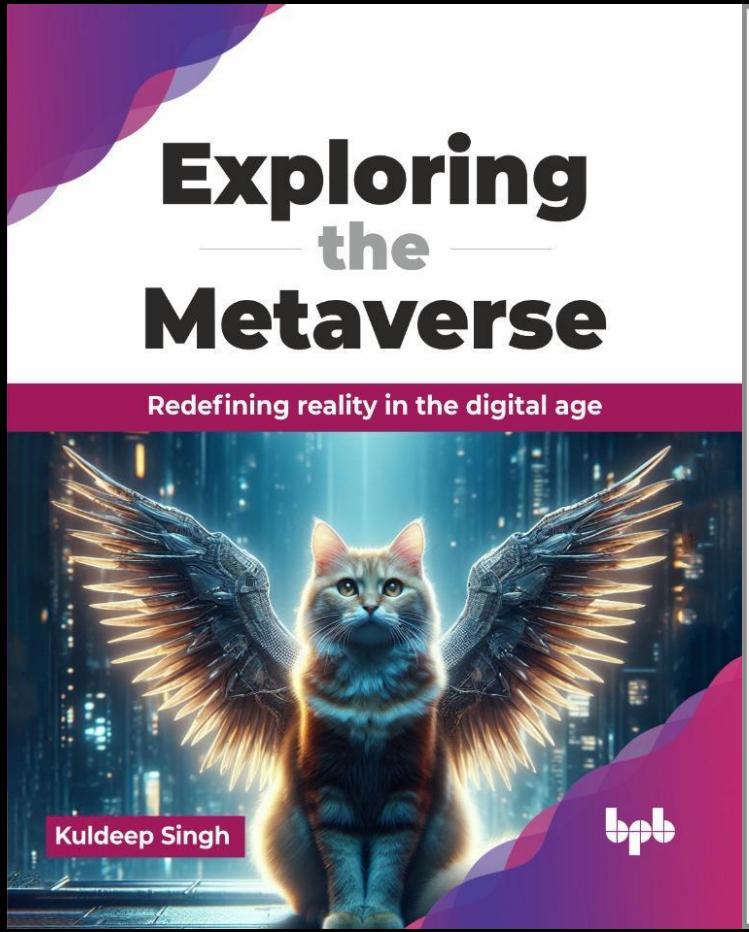
Role of AI in XR

XR is becoming interface of AI

Chapter 4



/thoughtworks



Chapter 4
AI Empowering the Metaverse

Introduction

This chapter explores the crucial role of **Artificial Intelligence (AI)** in the metaverse, enabling intelligent and seamless interactions within virtual environments. It covers how AI capabilities contribute to immersive and interactive experiences in the metaverse, encompassing user identification, natural language interactions, visual perception, physical interactions, spatial awareness, audio experiences, and advanced data processing. It also touches up on the research that connects the brain to computers and manipulates dreams and thoughts to bring magic of technology.

> **Any sufficiently advanced technology is indistinguishable from magic**
>
> *-- Arthur C. Clarke*

Structure

In this chapter, we will discuss the following topics:

- Artificial Intelligence
- Importance of AI
- Evolution in AI
- AI enabling metaverse

Generative XR

Space aware AI bringing new era of immersion

XR is becoming an interface for AI

https://thinkuldeep.com/post/generative-xr-space-aware-ai-bringing-new-era-of-immersion/

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Azure AI

Using Azure AI in XR World

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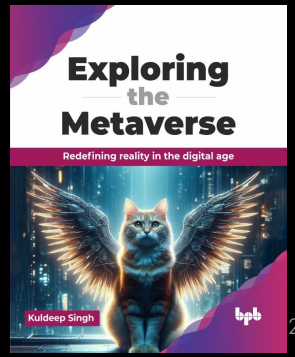
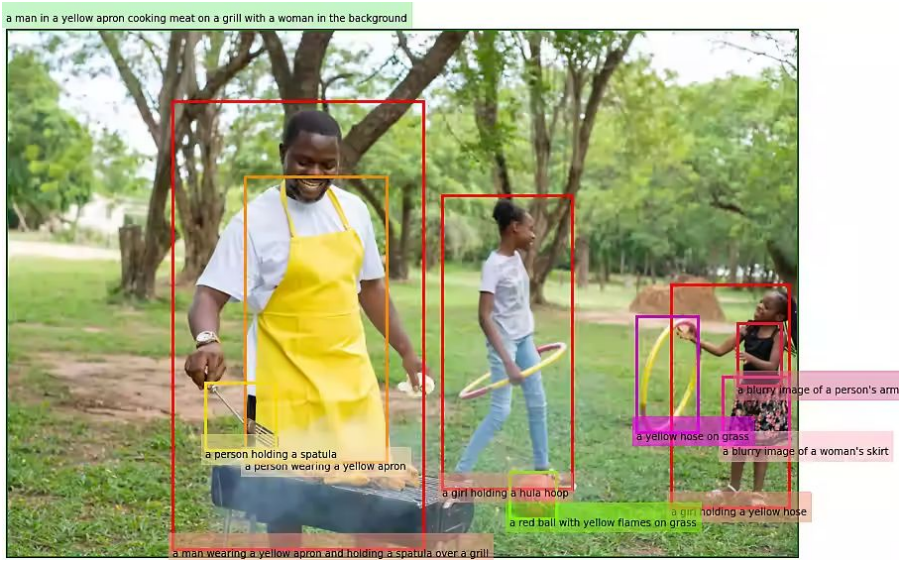


Azure AI Vision

Sensing the world with Azure AI Vision and Cognitive services



Sense textual information, sensitive content from images

Sense common objects, image matching and searches.

Detect people, their faces and liveliness

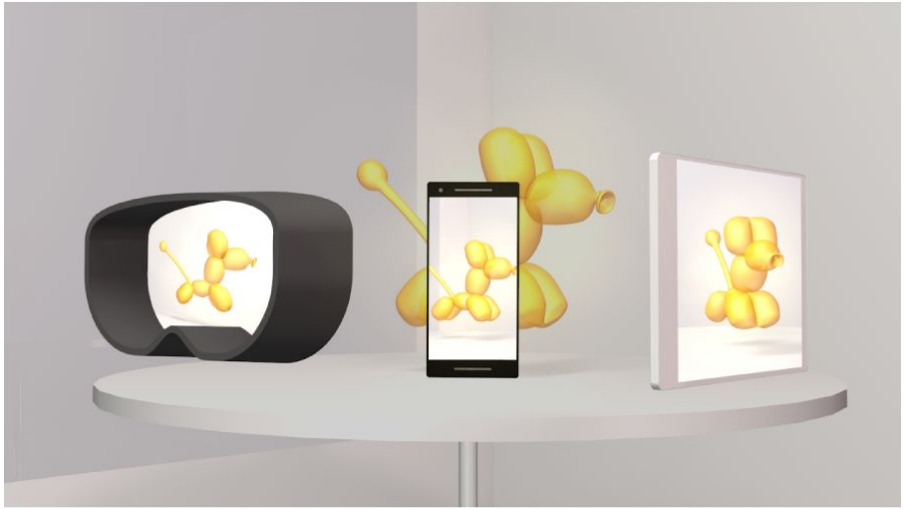
Count people in given area, monitor entry/exit in specific area, and social distancing

Recognise products on shelf, categorize them

Video retrieval and summarization, movement tracking

Azure Spatial Anchors

Build spatial aware mixed reality apps using ASA, AOA



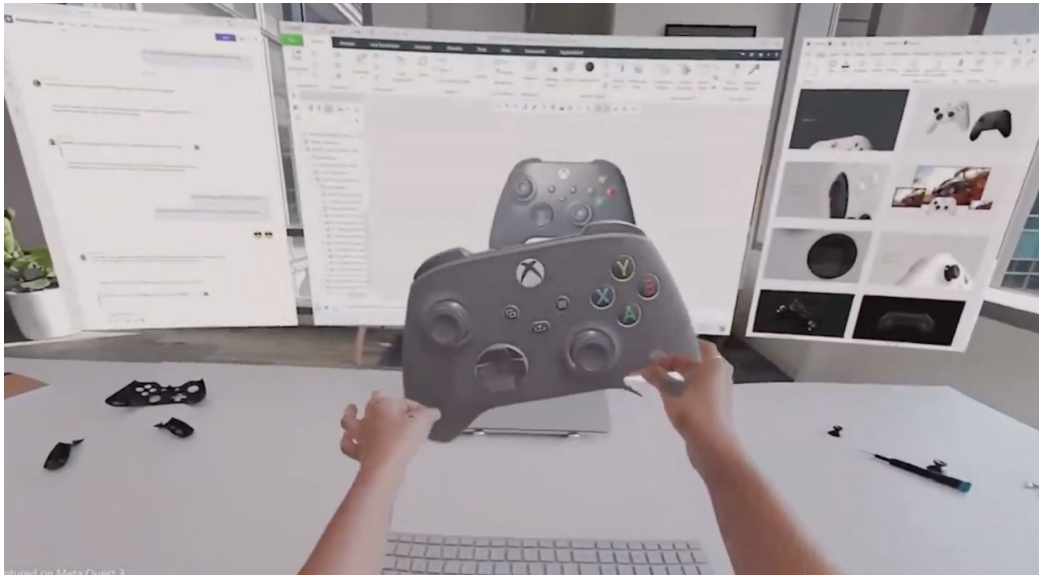
- Perceive spaces, designate precise points of interest, and to recall those points of interest from supported devices
- Share spatial anchors to build multi-user experiences in shared space.
- Setup wayfinding application by linking anchors - museums, factory, open spaces.
- Store contextual information in the anchors
- Support Unity, Xamarin and Native app development for Android, iOS and Hololens
- Azure Object Anchors can detect an object in the physical world and estimate its 6-DoF pose given a 3D model of that object

Azure Remote Rendering and more

- Build interactive experiences with the highest quality 3D content
- Render most complex 3D content in limited capable devices
- View and interact with your 3D models without decimation
- Render hundreds of millions of polygons and stream to mixed-reality devices with low latency
- Use the powerful SDK to easily include remotely rendered content
- Azure Cognitive and GenAI services

Microsoft Volumetric Apps

- MRTK3 support OpenXR
- Extend Windows apps into the 3D space in Meta Quest
- Microsoft Teams Mesh
- Dynamics 365 Field Service, Guides and Remote assistance
- AI first service



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Thanks and Keep in touch

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Head of XR Practice, Principal Consultant, Engineering

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medium.com/xrpractices

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