Organised by

EXPRESS COMPUTER

Sponsored by

/thoughtworks

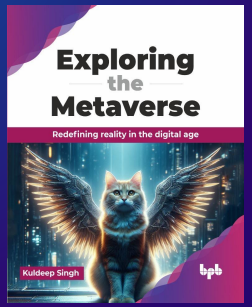
Harnessing Business Opportunity with AI Powered XR

"Transforming the future of Enterprises"

Kuldeep Singh

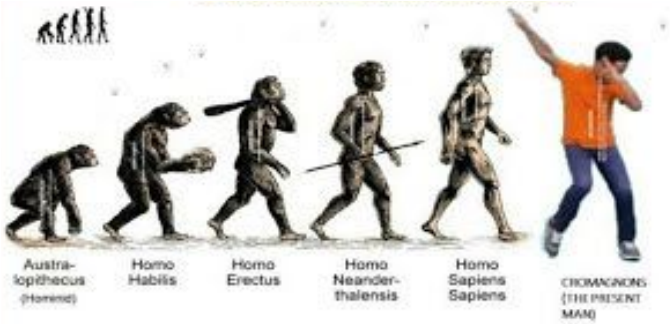
Head of XR Practice, Principal Consultant, Author

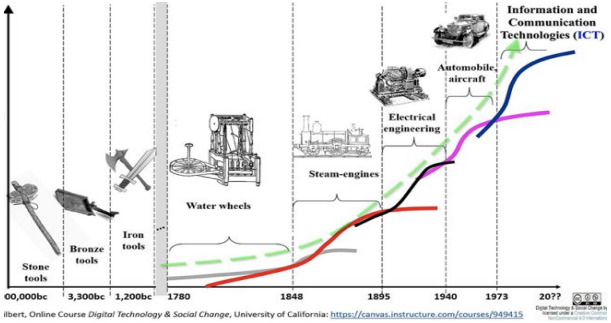
/thoughtworks



thinkuldeep.com

Highlights





Understanding the XR world

AI Powered XR - Developing the artificial sense

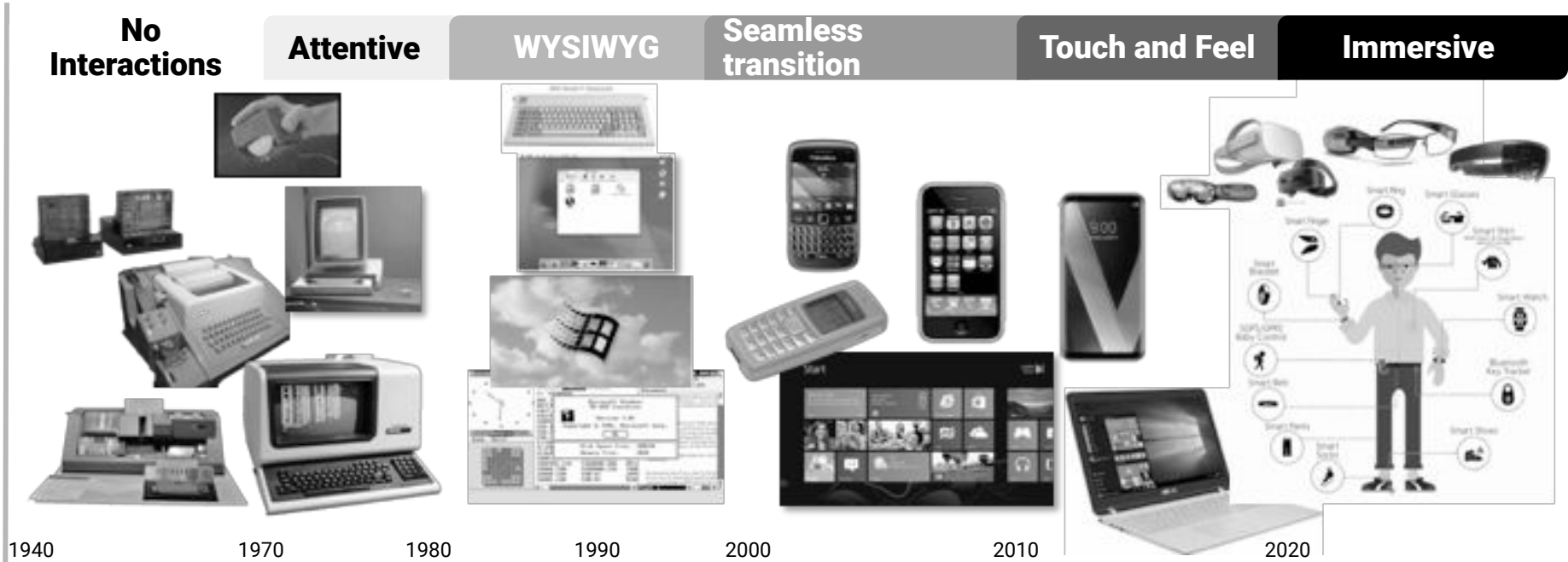
Communicate with artificial sense

Work with artificial sense

Go beyond with artificial sense

Nothing is without cost, the way forward.

a dumb idea!



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?

Daily Mail, Tuesday, December 5, 2000

Page 33

Internet 'may be just a passing fad as millions give up on it'

THE Internet may be only a passing fad for many users.

By James Chapman
Science Correspondent

Net loss: Two million Britons have logged off the Internet

ChatBots - Conversational UI

Hyperloop

Neuralink

Google Glass

Smart Watch

Artificial Intelligence

Metaverse

Touch Screen

XR

Organised by EXPRESS COMPUTER

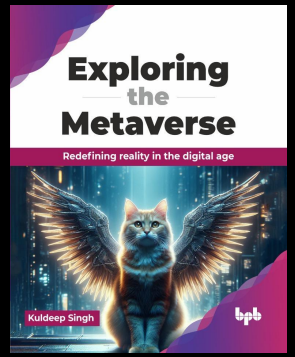
Sponsored by thoughtworks

POLL - 1

What has technology contributed to our lives the most?

Understanding the XR World

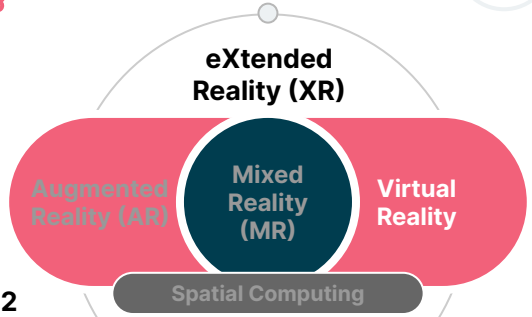
Extended Real World - Reality redefined



/thoughtworks

Realities are going through a paradigm shift

Metaverse



Artificial Intelligence

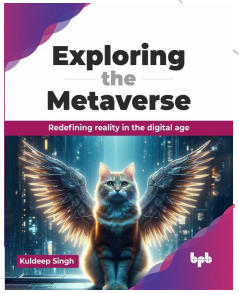
Cloud

5G/6G

Internet of things

Blockchain

Part 2



XR beyond head mounted devices - web XR /mobile XR

Immersive experience re-ignited by Apple Vision Pro

Ecosystem shaping up with Meta Horizon OS/ Google Android XR / Qualcomm Spaces

XR investment growth over 100% in next 5 years for optimization of Enterprise operations

Driving XR based use cases

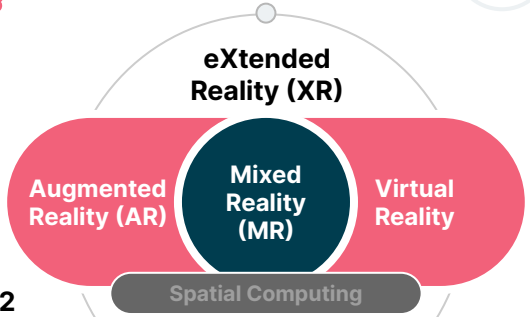
- Simulation & Training
- Operational Efficiency

Enhancing XR experiences using AI

Rise of spatial intelligence systems

Realities are going through a paradigm shift

Metaverse



Artificial Intelligence

Cloud

5G/6G

Internet of things

Blockchain

XR beyond head mounted devices - web XR /mobile XR

Immersive experience re-ignited by Apple Vision Pro

Ecosystem shaping up with Meta Horizon OS/ Google Android XR / Qualcomm Spaces

XR investment growth over 100% in next 5 years for optimization of Enterprise operations

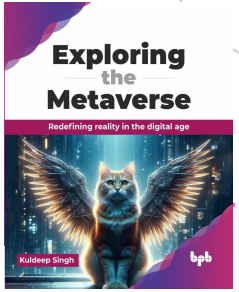
Driving XR based use cases

- Simulation & Training
- Operational Efficiency

Enhancing XR experiences using AI

Rise of spatial intelligence systems

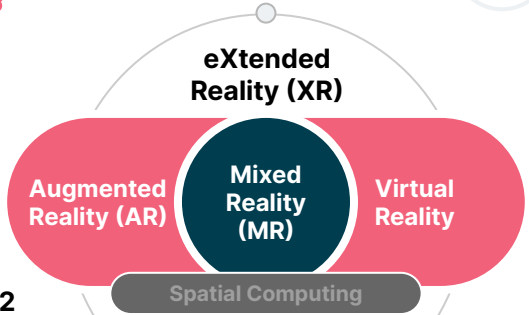
Part 2



FREE GUY
OFFICIAL
TRAILER

Realities are going through a paradigm shift

Metaverse



Artificial Intelligence

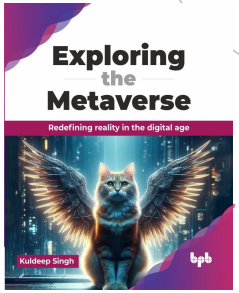
Cloud

5G/6G

Internet of things

Blockchain

Part 2



XR beyond head mounted devices - web XR /mobile XR

Immersive experience re-ignited by Apple Vision Pro

Ecosystem shaping up with Meta Horizon OS/ Google Android XR / Qualcomm Spaces

XR investment growth over 100% in next 5 years for optimization of Enterprise operations

Driving XR based use cases

- Simulation & Training
- Operational Efficiency

Enhancing XR experiences using AI

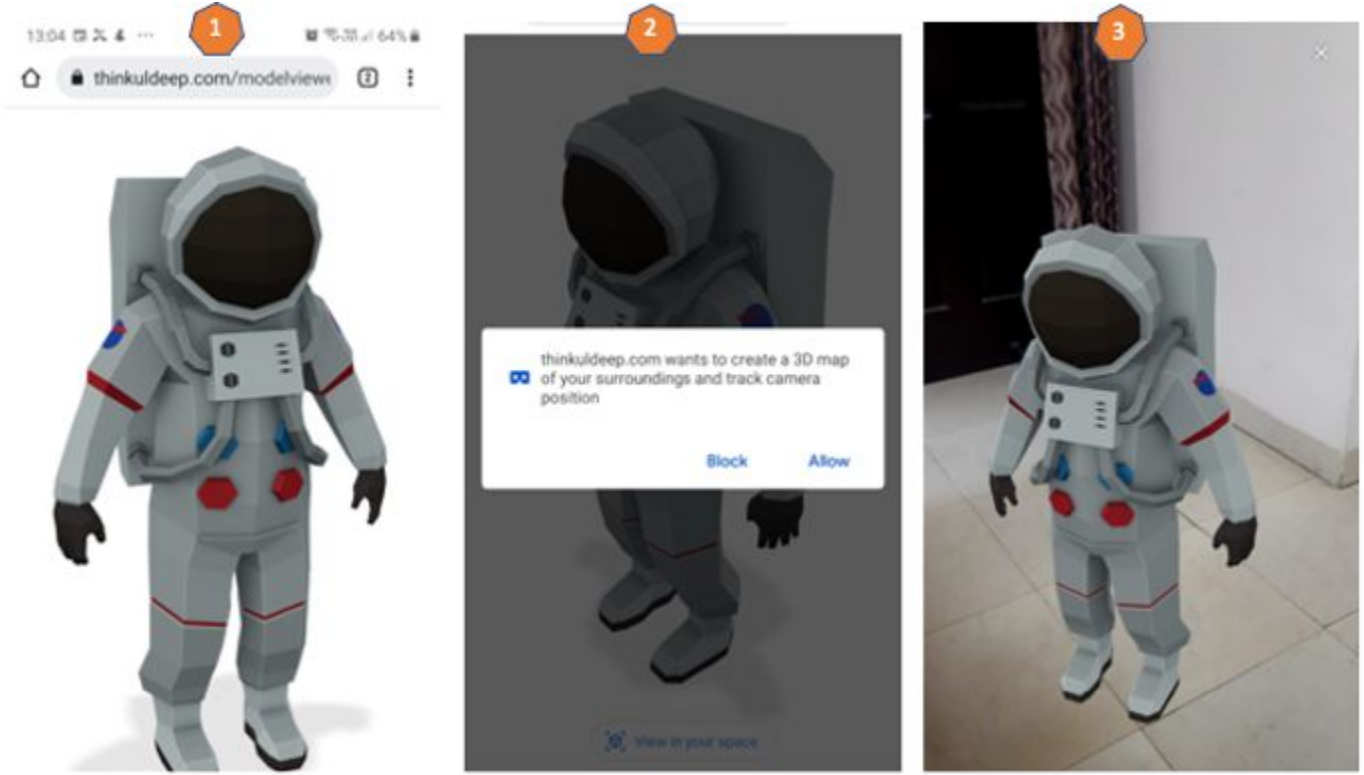
Rise of spatial intelligence systems

SHEIN

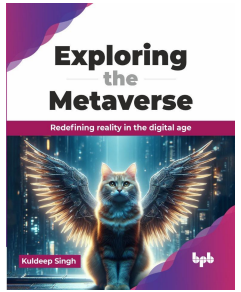
Chapter 3

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

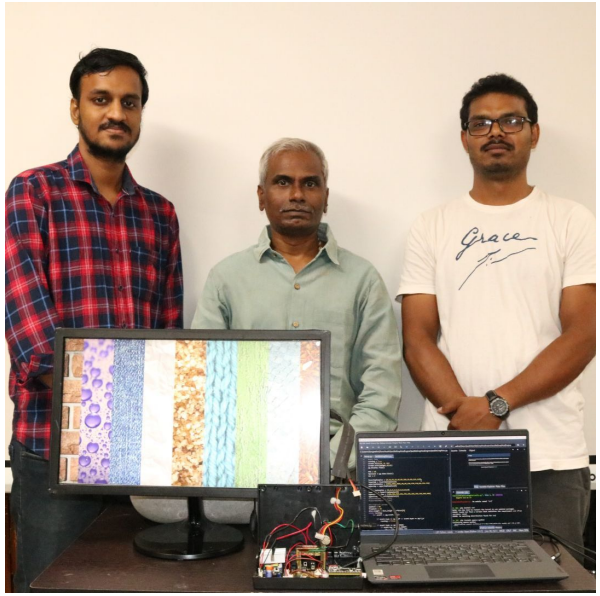
WebXR

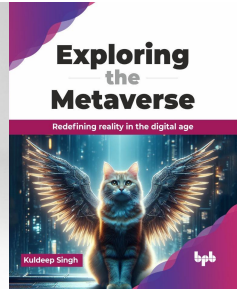


https://thinkuldeep.com/modelviewer/



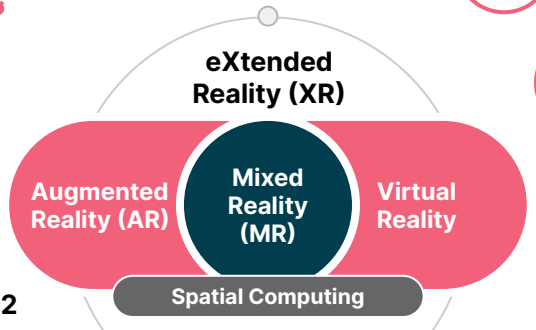
teslasuit


Grace


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

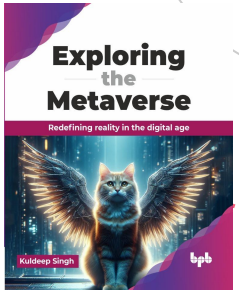
Realities are going through a paradigm shift

Metaverse



- Artificial Intelligence
- Cloud
- 5G/6G
- Internet of things
- Blockchain

Part 2



XR beyond head mounted devices - web XR /mobile XR

Immersive experience re-ignited by Apple Vision Pro

Ecosystem shaping up with Meta Horizon OS/ Google Android XR / Qualcomm Spaces

XR investment growth over 100% in next 5 years for optimization of Enterprise operations

Driving XR based use cases

- Simulation & Training
- Operational Efficiency

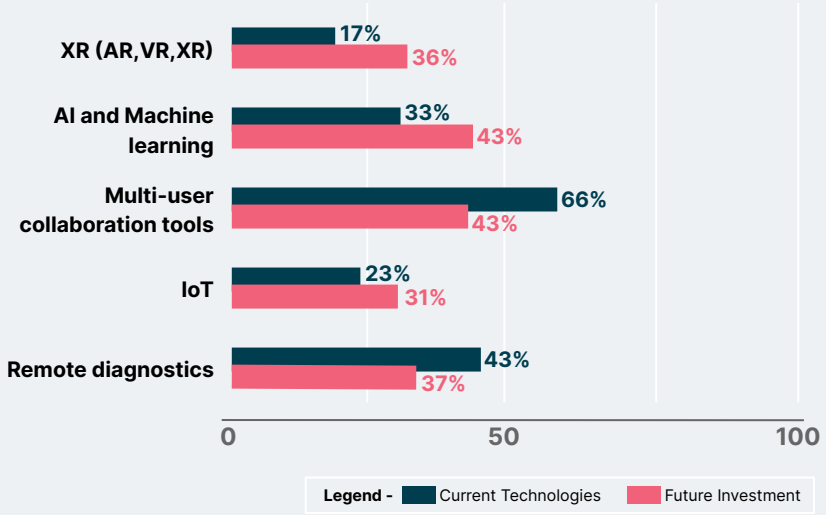
Enhancing XR experiences using AI

Rise of spatial intelligence systems

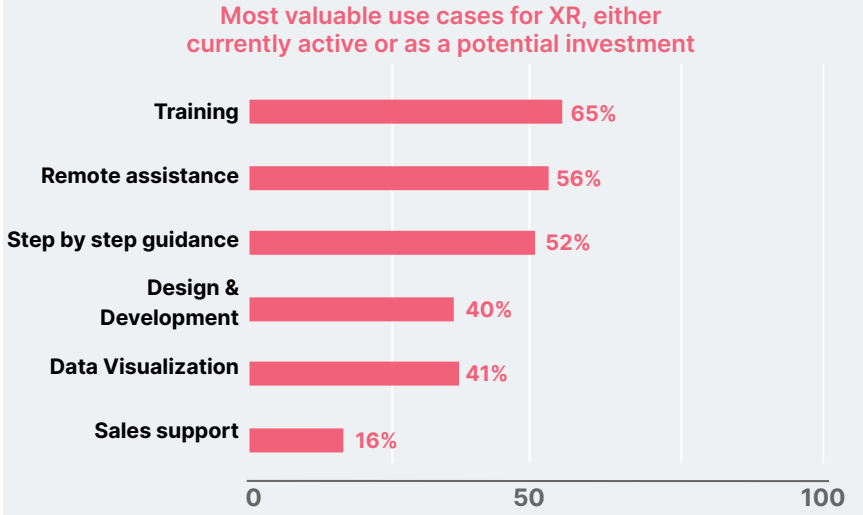
Enterprises are adapting their strategies to incorporate transformative XR technologies for a competitive edge

Key observations and trends

Technologies companies are investing in to optimize operations today, and what is planned for the future



Training/onboarding & Remote assistance are among the top use cases of XR tech in enterprise...



Survey from ABI Research. Survey respondent roles included sales and marketing, operations, Information Technology (IT), frontline workers, and executive-level employees.

©2024 Thoughtworks Technologies India Pvt. Ltd. | Confidential - All rights reserved. Do not distribute.

We leverage the innovations across industry to set new benchmarks in XR delivery

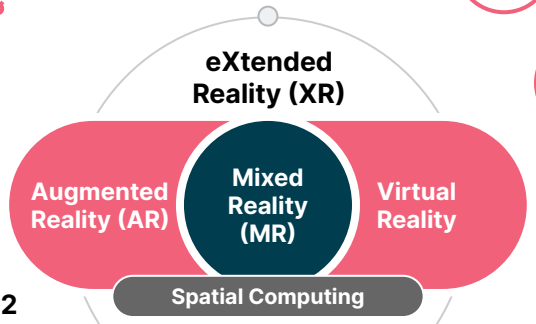
Common XR use cases

In-store AR based engagement	360-degree VR tours	Virtual Artist	VR based design and engineering reviews	3D visualizations	VR events	Virtual shopping experience, fitting rooms etc.
AR based product catalog	Virtual marketing	Interactive 3D Simulation	Training & Employee engagement	Field service	Try before you buy	Virtual customization

©2024 Thoughtworks Technologies India Pvt. Ltd. | Confidential - All rights reserved. Do not distribute.

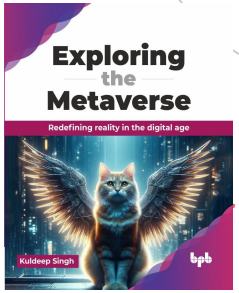
Realities are going through a paradigm shift

Metaverse



- Artificial Intelligence
- Cloud
- 5G/6G
- Internet of things
- Blockchain

Part 2



XR beyond head mounted devices - web XR /mobile XR

Immersive experience re-ignited by Apple Vision Pro

Ecosystem shaping up with Meta Horizon OS/ Google Android XR / Qualcomm Spaces

XR investment growth over 100% in next 5 years for optimization of Enterprise operations

Driving XR based use cases

- Simulation & Training
- Operational Efficiency

Enhancing XR experiences using AI

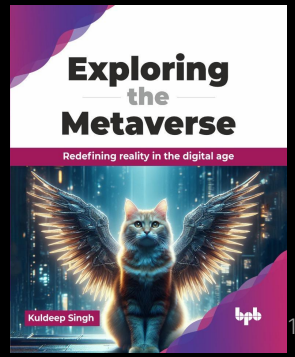
Rise of spatial intelligence systems

EXPRESS COMPUTER

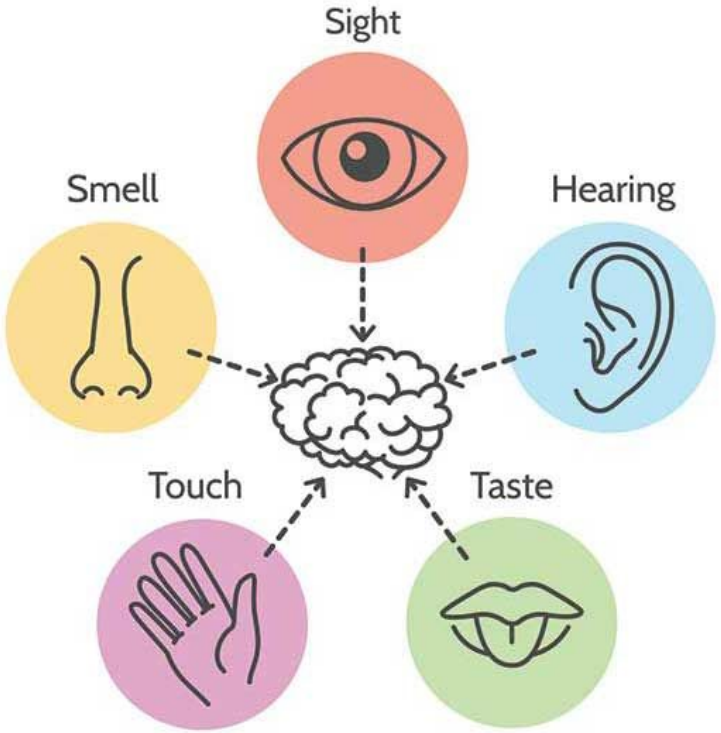
AI Powered XR

Making artificial sense of the World

/thoughtworks



How do we make senses of the world?



Depth Sensing

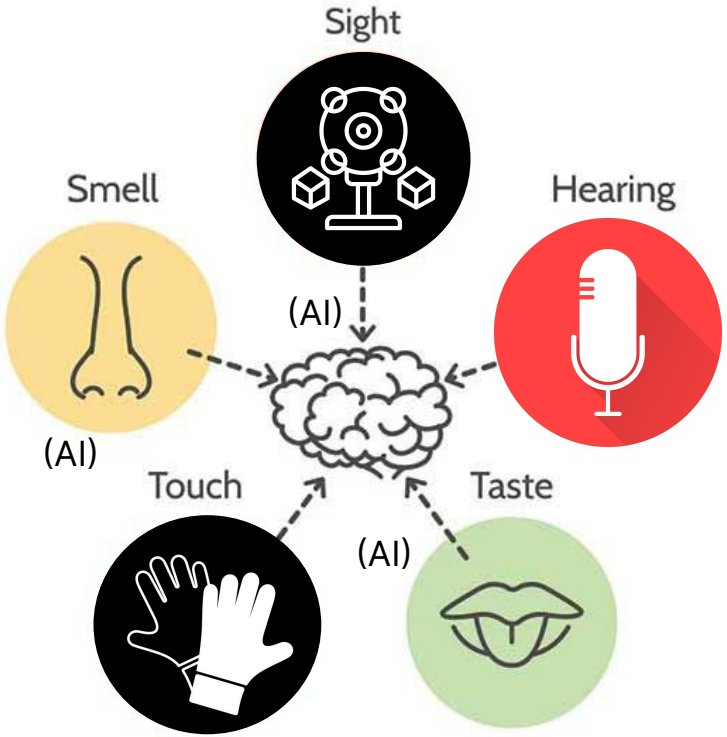
Object detection, Voice recognition

Motion tracking - Physics, Gravity

Physical and psychological safety perception

Golden Stripes

How do we make senses of the XR world?



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

Object detection, Voice Recognition

Motion tracking
(SLAM, Physics Engine)

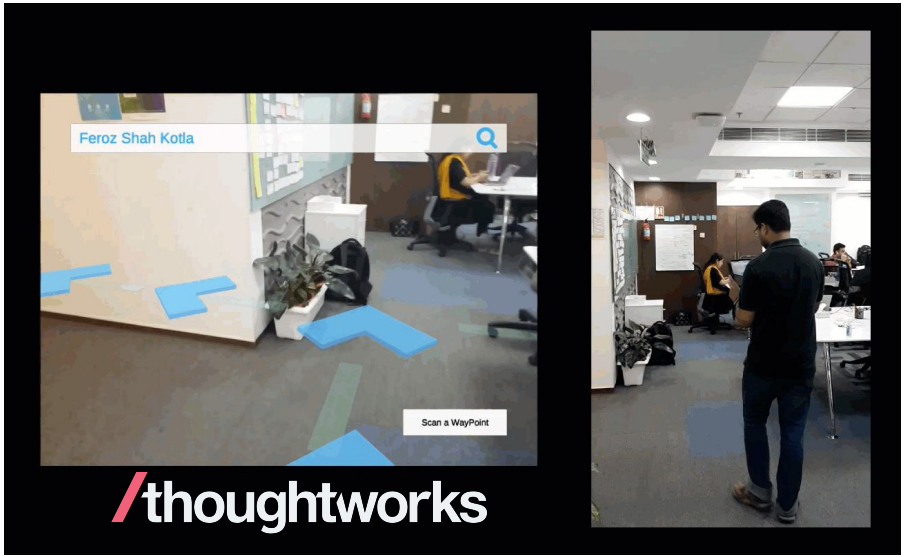
Physical and psychological safety perception (Sensors, Actuators, BCI - AI)

Space Aware Apps

Spatial Computing

Volumetric Apps

Spatial Anchor, World Coordinates

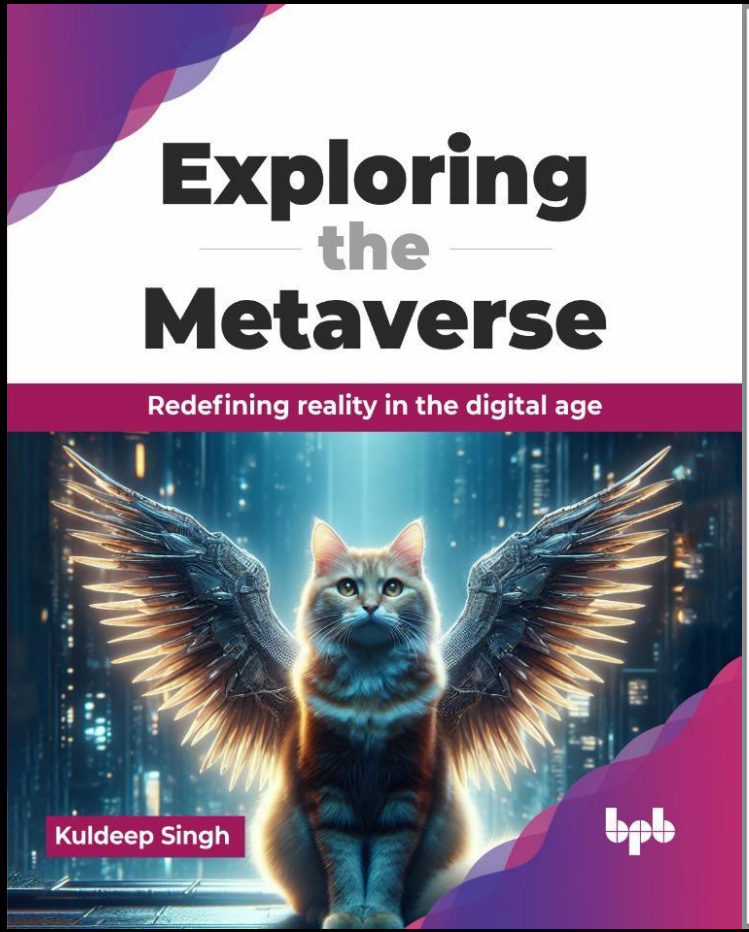


Map and navigation, optimal routing

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

Measure, Tracking Area, Volume Estimation, Progress.

Building Equity with Technology



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/

Organised by EXPRESS COMPUTER

Sponsored by thoughtworks

POLL - 2

Which extraordinary ability would you most like to have?

Use cases?

All good but are there real use cases?

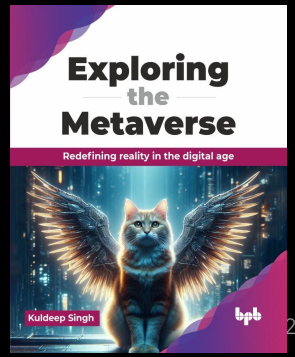
POLL - 3

Which area we want to invest the most?

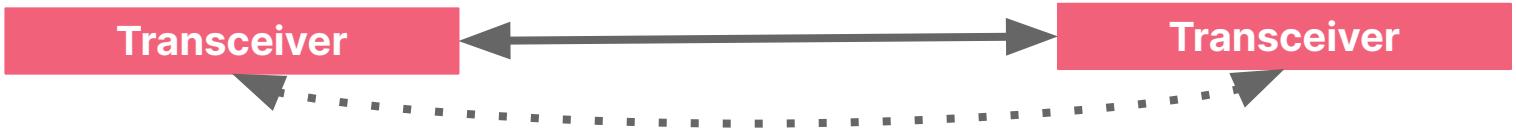
EXPRESS COMPUTER

Communicate with Artificial Sense

/thoughtworks



Communicate with Artificial Sense



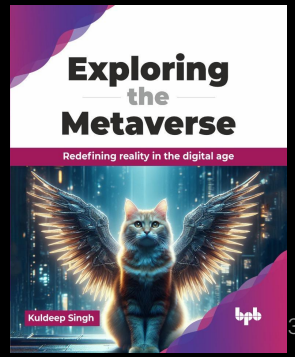
Context	Challenges	Outcome
• Education • Training • Onboarding • Marketing • Entertainment • Consultation • Customer support • Coaching • Conferences • Get together	• Language • Location • Culture • Ability / IQ / EQ • Situation • Financial/ Educational Background • Behaviour and Preferences • Age, Sex and Race	• Personalized Education & Training • Personalised Content and Entertainment • Targeted marketing and influencing • Virtual Communication Agents • Always available services • Trust building by visualising AI • Meet the scale

💬 Try it in your domain

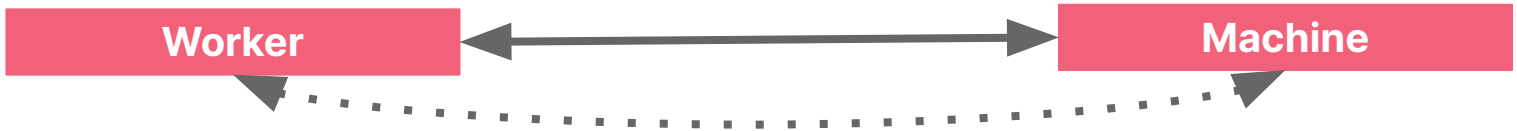
EXPRESS COMPUTER

Work with Artificial Sense

thoughtworks



Work with Artificial Sense



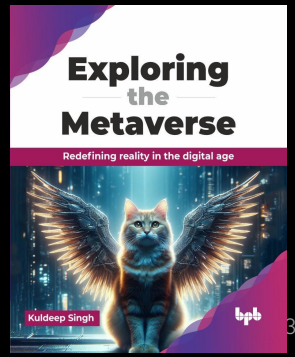
Context	Challenges	Outcome
• Operational Efficiency • Productivity • Distraction free work • Assistant / Reviews • Safety • Audit and Compliance • Hybrid working • Remote working	• Aging labour, shortage • Outdated knowledge, and traditional trainings • Working with machines • Mental strength • Fatigue • Cost of monitoring and compliance • Changing work environment	• Enhanced capability with AI assistant • Remote collaboration • Human machine Integrated working environment • Productivity boost by targeted upskilling • Safety compliance • Pre-trials and simulation to build trust

💬 Try it in your domain

EXPRESS COMPUTER

Go Beyond with Artificial Sense

thoughtworks



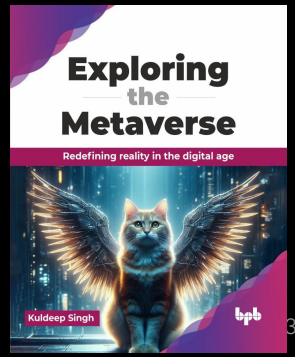
Go Beyond with Artificial Sense

Context	Challenges	Outcome
• Gaming and Entertainment • Creative Art and Culture • Time travel experiences • Virtual Social Life • Health and Fitness • Experience beyond physical limits	• Imagining beyond life and physical ability, and boundary • Tech Awareness and availability • Cost and affordability • Space and resource limitation	• Virtual Studios and showrooms • XR Enabled Museums, Meet and greet • Enhanced sports and Fitness • Virtual coaching • Experience the imagination • Virtual Drugs and Therapy

💬 Try it in your domain

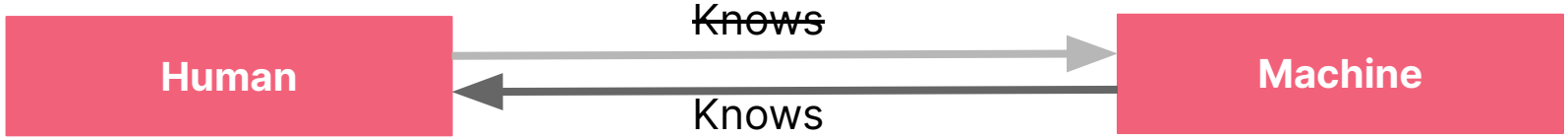
EXPRESS COMPUTER

Nothing is Free, the Way Forward



/thoughtworks

Nothing is Free, The Way Forward

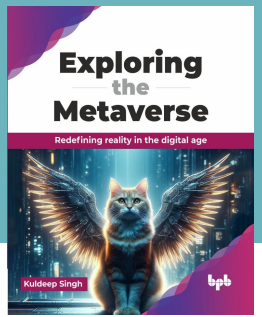


Challenges

- Privacy and Identity Protection
- Dependence
- Social Isolation, Mental issues
- Awareness
- Sustainability - Viability, Bearability, Equitability

The Way Forward

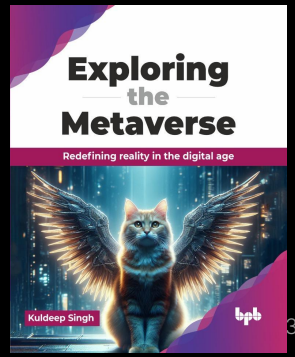
- Collective effort - Academia, Industry, Businesses, Governing body, and people.
- Create awareness, use it wisely.
- Contribute in developing standards and and practices, open ecosystem.



EXPRESS COMPUTER

Questions?

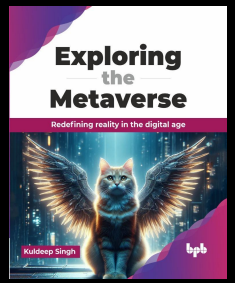
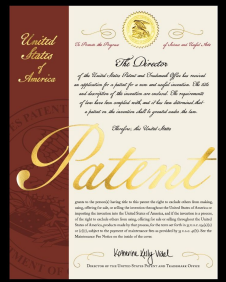
/thoughtworks



Thanks and keep in touch

Kuldeep Singh

Head of XR Practice, Principal Consultant

/thoughtworks

👉 kuldeeps@thoughtworks.com
👉 thinkuldeep.com
👉 medium.com/xrpractices
👉 linkedin.com/in/kuldeep-reck/
👉 x.com/thinkuldeep