Designers Lighting Forum

Leveraging Technology to Connect with You

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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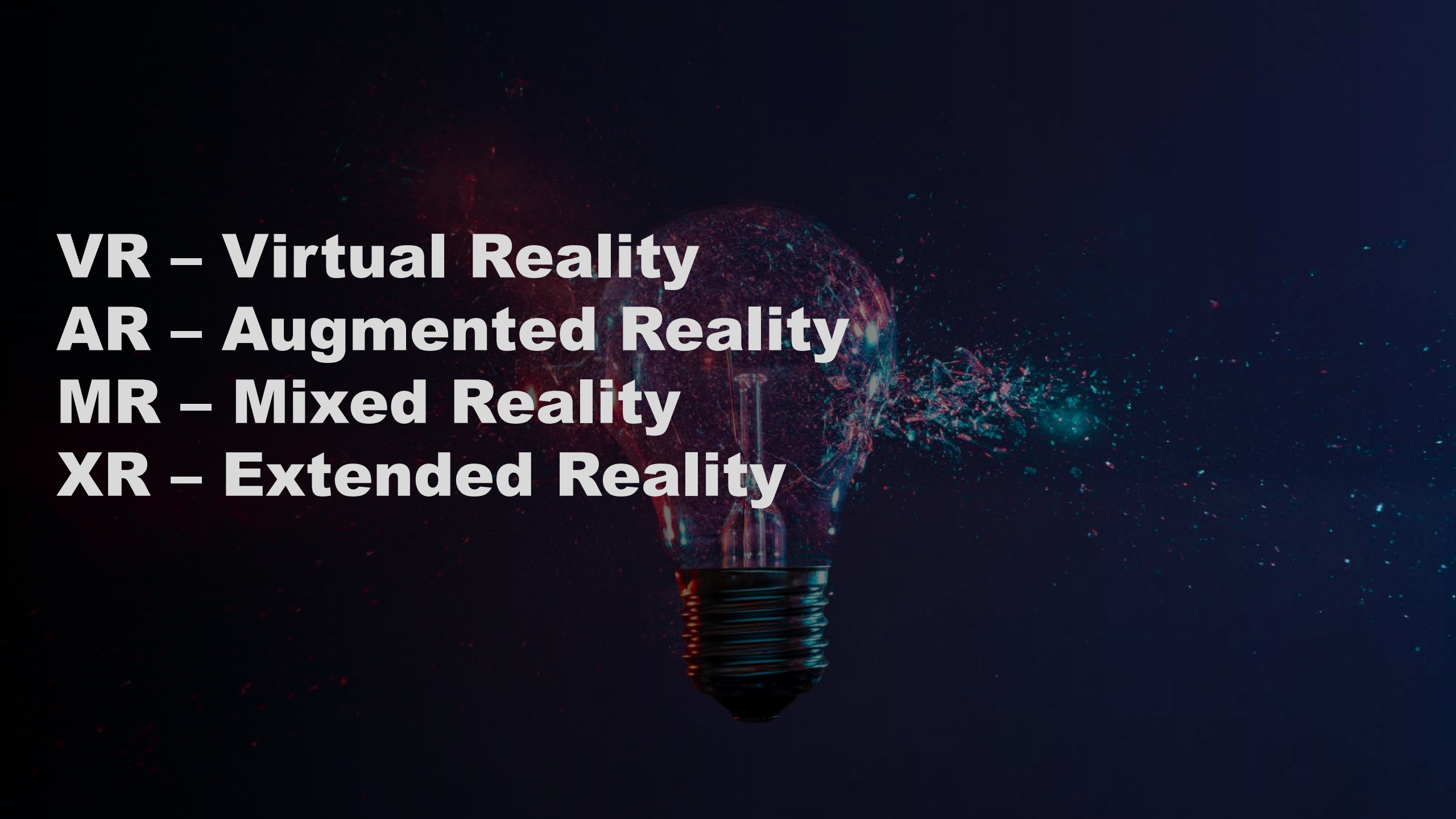
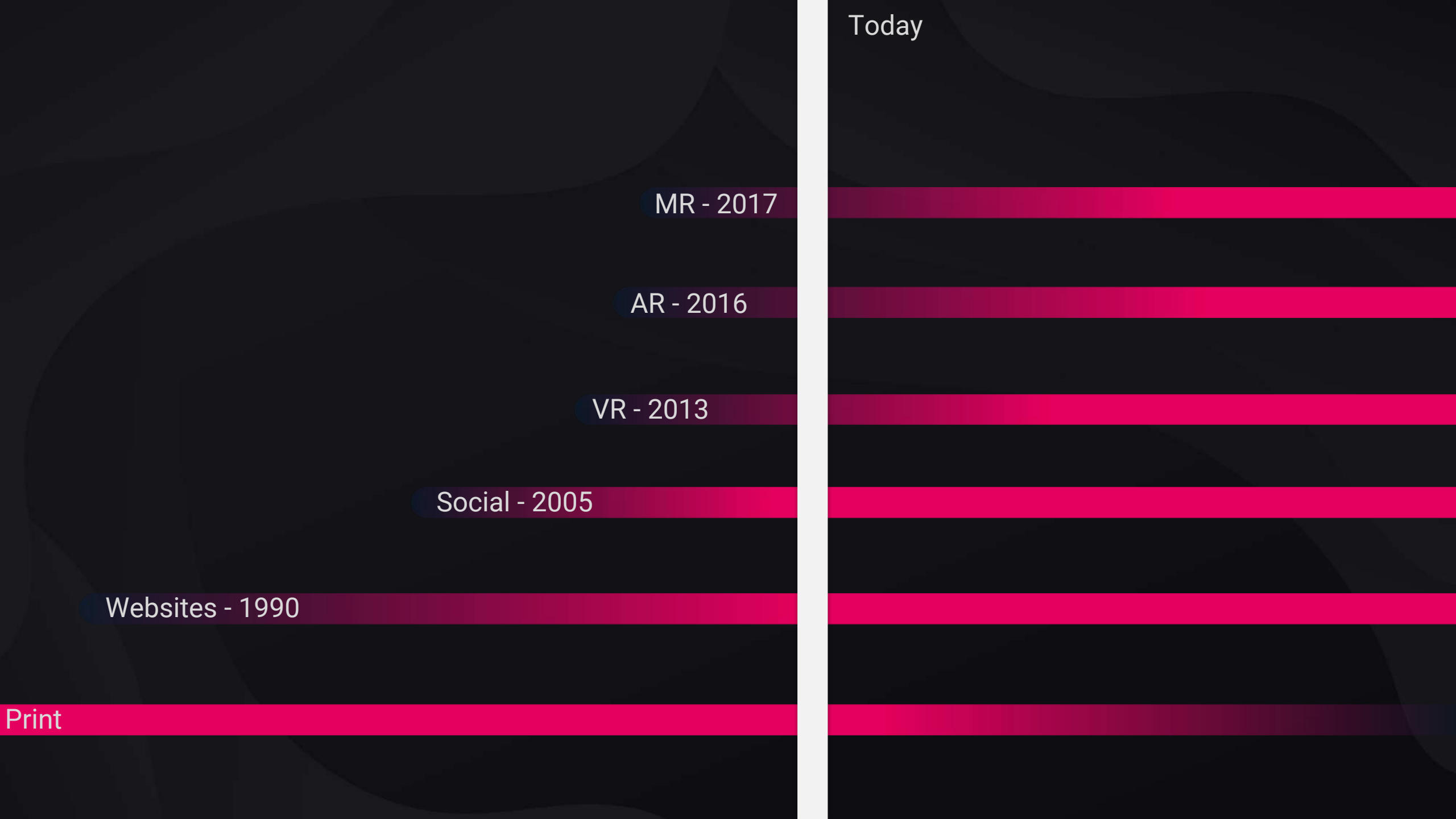
Learning Objectives

At the end of this course, participants will be able to:

1. Understand the differences between AR, VR, XR, MR, PR, and R&R
2. Understand the current hardware solutions to achieve #1 above
3. Understand why visual communication is a powerful tool
4. Use an object to describe the limitations of current representations of LED lighting and how newer technologies can help bridge the gap in understanding between digital and physical products


VR – Virtual Reality
AR – Augmented Reality
MR – Mixed Reality
XR – Extended Reality


Today
MR - 2017
AR - 2016
VR - 2013
Social - 2005
Websites - 1990
Print

VR

CLASSIFIED

Solve world hunger

Establish world peace

Enter the Upside Down

Create true joy


Memory

Developer Kits

2013 2016 2018 2019 2020 2021 2022+

Developer Kits

Consumer Options

2013

2016

2018

2019

2020

2021

2022+

Developer Kits

Consumer Options

Oculus Go

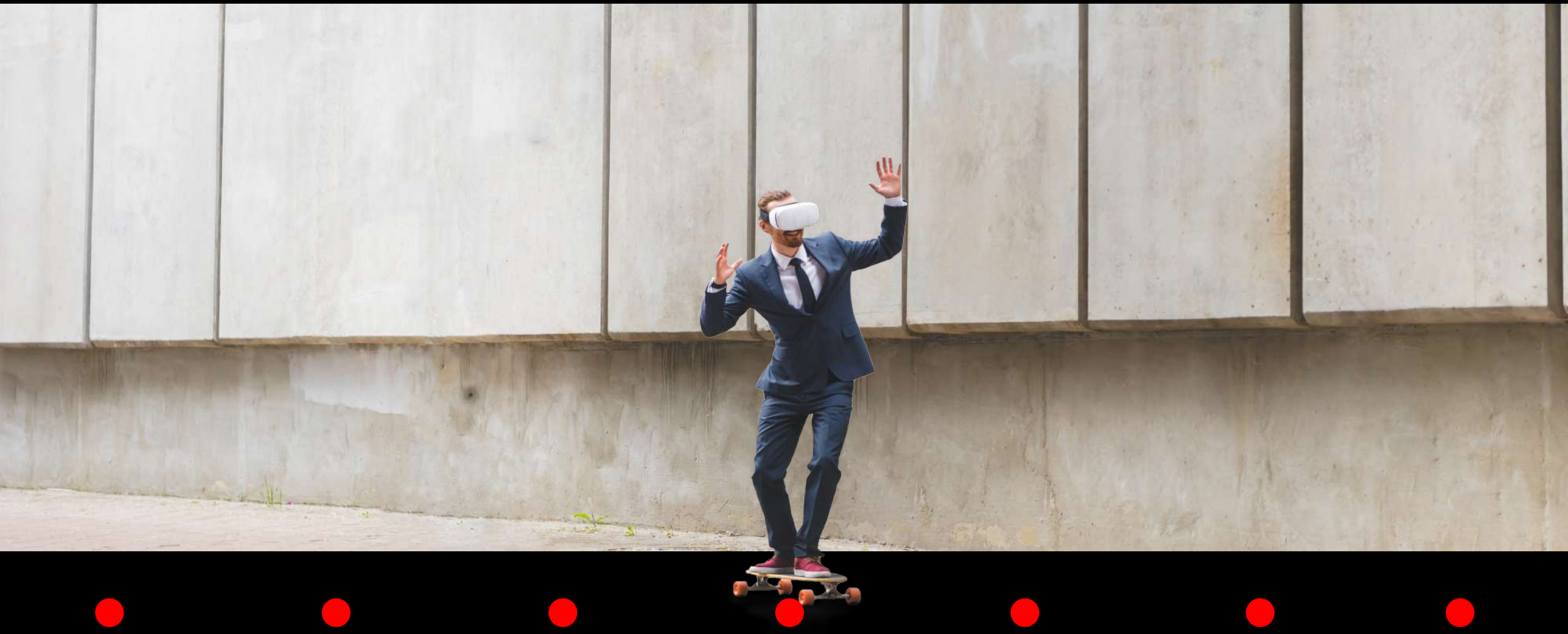
2013 2016 2018 2019 2020 2021 2022+

Developer Kits

Consumer Options

Oculus Go

Oculus Quest



2013

2016

2018

2019

2020

2021

2022+

Developer Kits

Consumer Options

Oculus Go

Oculus Quest

Oculus Quest 2

2013

2016

2018

2019

2020

2021

2022+

Developer Kits

Consumer Options

Oculus Go

Oculus Quest

Oculus Quest 2

Productivity Apps App Lab

2013

2016

2018

2019

2020

2021

2022+

Developer Kits

Consumer Options

Oculus Go

Oculus Quest

Oculus Quest 2

Productivity Apps App Lab

Eye Tracking

2013

2016

2018

2019

2020

2021

2022+


Arm
Mount

Y AXIS YAW

X AXIS PITCH

Z AXIS ROLL

Y AXIS UP/DOWN

X AXIS LEFT/RIGHT

Z AXIS FRONT/BACK

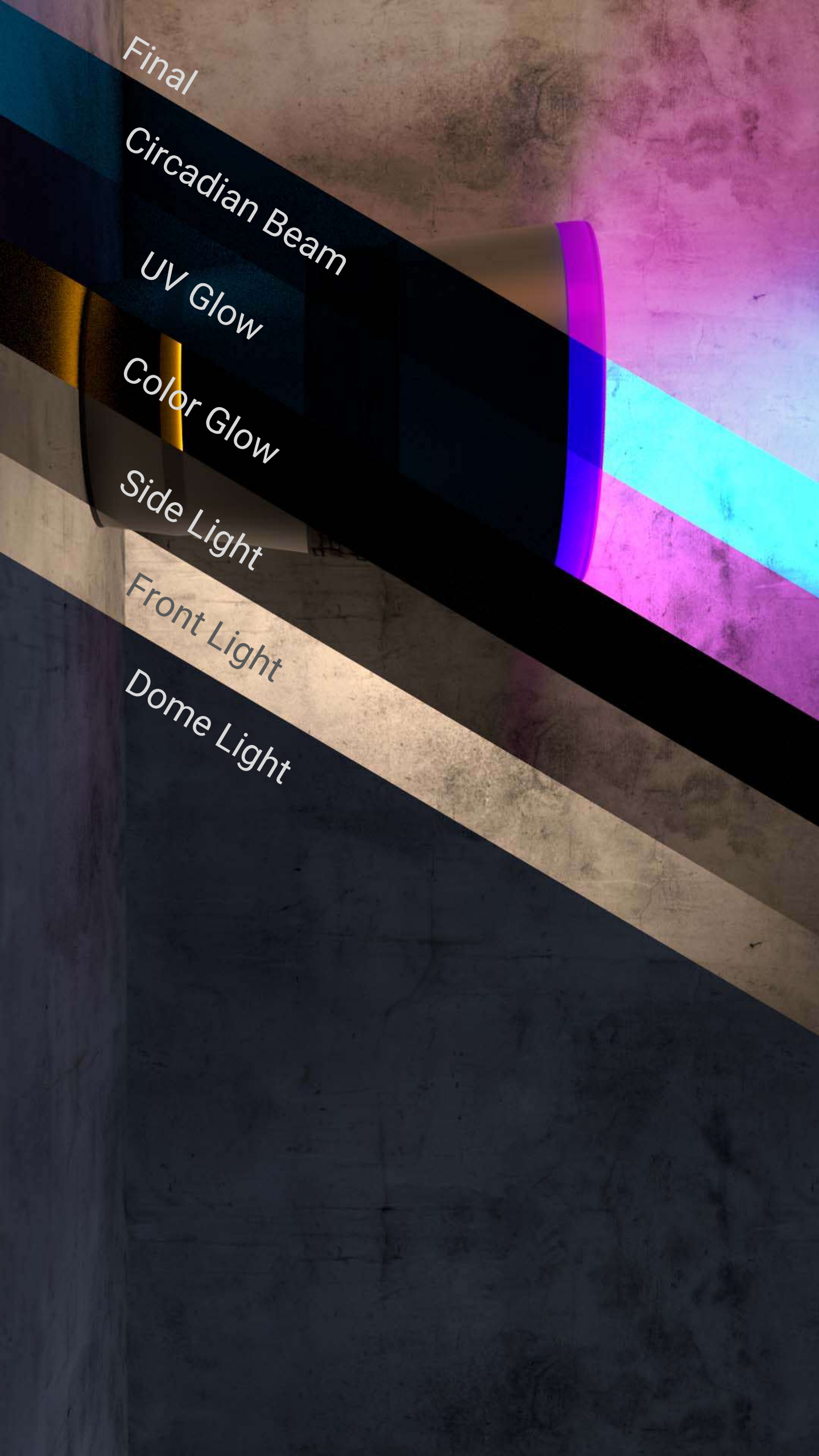
https://alex4d.com/images/alex4dNotes/6DoF.gif

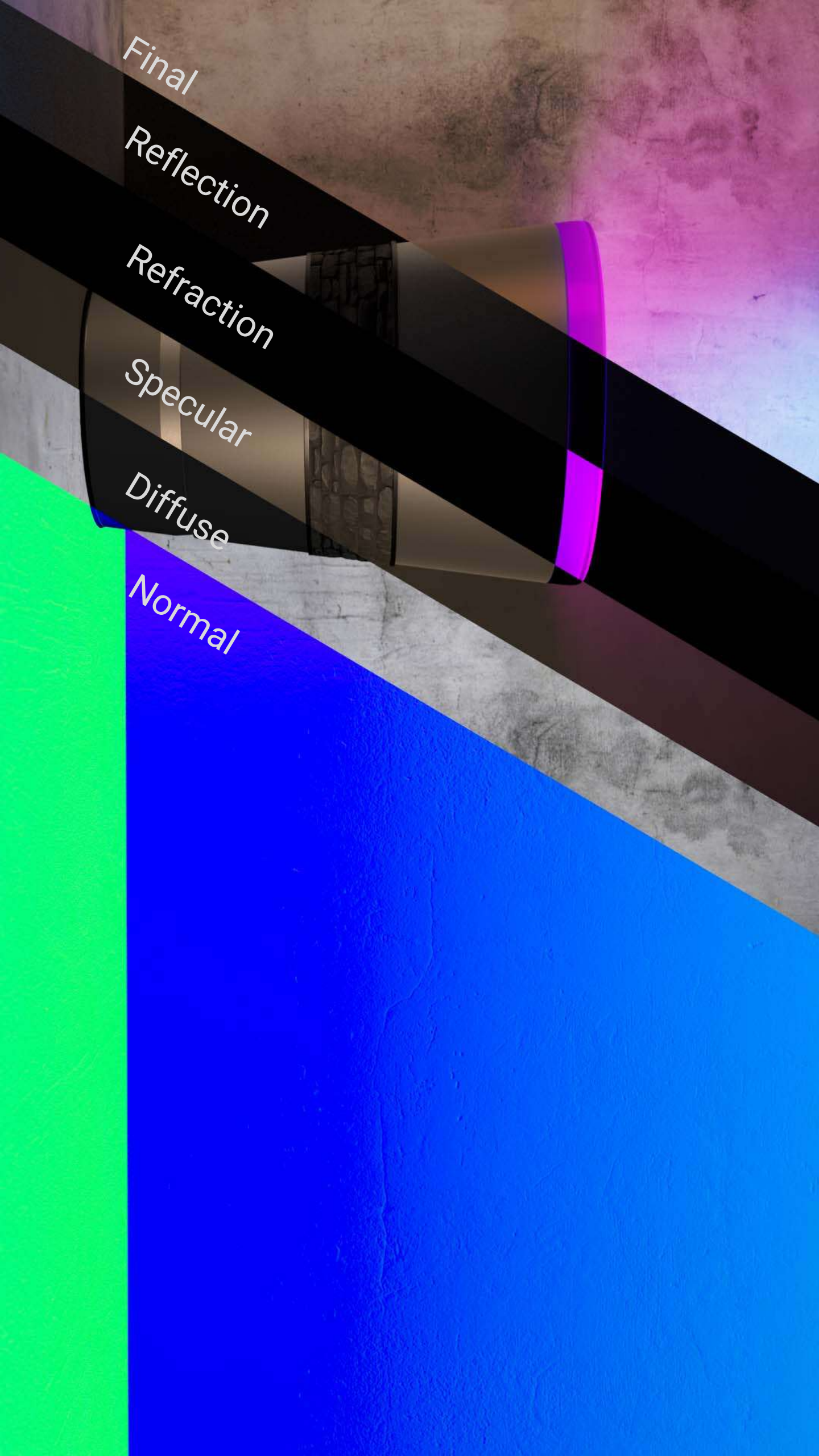
Before

After

Concept: Light Baking

How we bake lighting characteristics into static materials to allow for real-time rendering engines to operate in real time.


Final
Circadian Beam
UV Glow
Color Glow
Side Light
Front Light
Dome Light


Final
Reflection
Refraction
Specular
Diffuse
Normal

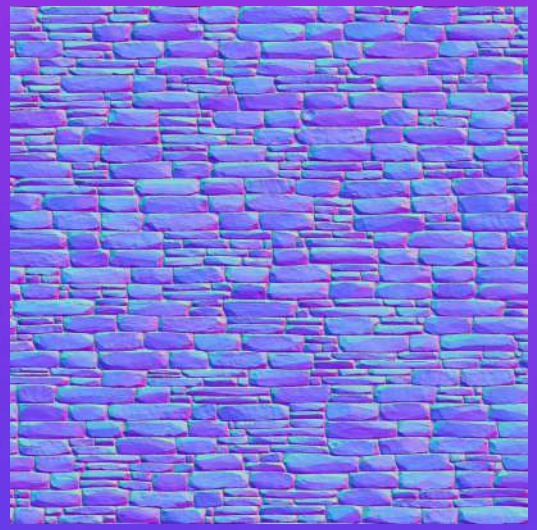
Concept: Materials

How do we describe how light interacts with materials?

Diffuse

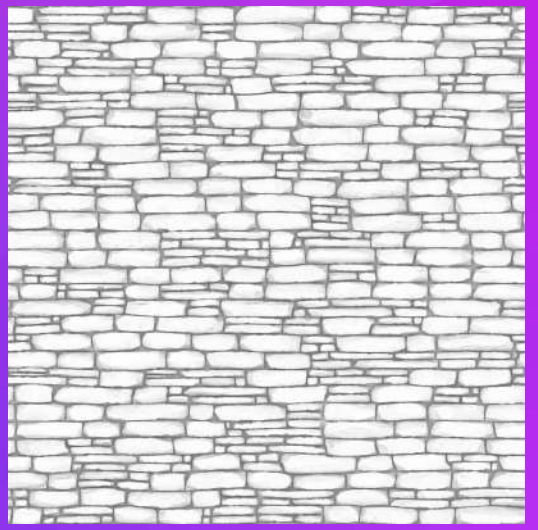
Displacement

Gloss



Normal

Reflect



AO

Basic parameters

Diffuse		M	Preset	Custom	
Roughness	0.0		Bump map	100.0	M
Reflect		M	Max depth	5	
Glossiness	1.0	M	Reflect on back side		
Fresnel reflections			Dim distance	100.0	
Fresnel IOR	L 1.6		Dim fall off	0.0	
Metalness	0.0		Affect channels	Color only	
Refract			Max depth	5	
Glossiness	1.0		Affect shadows		
IOR	1.6		Affect channels	Color only	
Abbe number	50.0		Thin-walled		
Translucency	None				
Fog color			Scatter color		
Depth (cm)	1.0		SSS amount	1.0	
Self-illumination			GI	Mult 1.0	

Compensate camera exposure

Coat parameters

Sheen parameters

BRDF

Options

Maps

Diffuse	100.0	AO + COLOR (Composite)
Reflect	100.0	Adjust Reflection (RGB Mu...
Glossiness	100.0	GLOSS (StoneBricksBlack00...
Refract	100.0	No Map
Glossiness	100.0	No Map
Opacity	100.0	No Map
Bump	100.0	VRayNormalMap (VRayNo...
Displace	15.0	DISPLACEMENT (StoneBrick...
Self-illum	100.0	No Map
Diff. rough.	100.0	No Map
Fresnel IOR	100.0	No Map
Metalness	100.0	No Map
Anisotropy	100.0	No Map
An. rotation	100.0	No Map
GTR falloff	100.0	No Map
IOR	100.0	No Map
Translucent	100.0	No Map
Fog color	100.0	No Map
Coat amnt.	100.0	No Map
Coat glossiness	100.0	No Map

Concept: Model Optimization

How we optimize models to look as high quality as possible while maintaining minimal polygon count


1
2
101,396 Triangles
14,002 Triangles

3D Configurators

AR

AR

How Do I Get Started?


EVGA | GEFORCE RTX 2080 Ti
thermaltake

unity

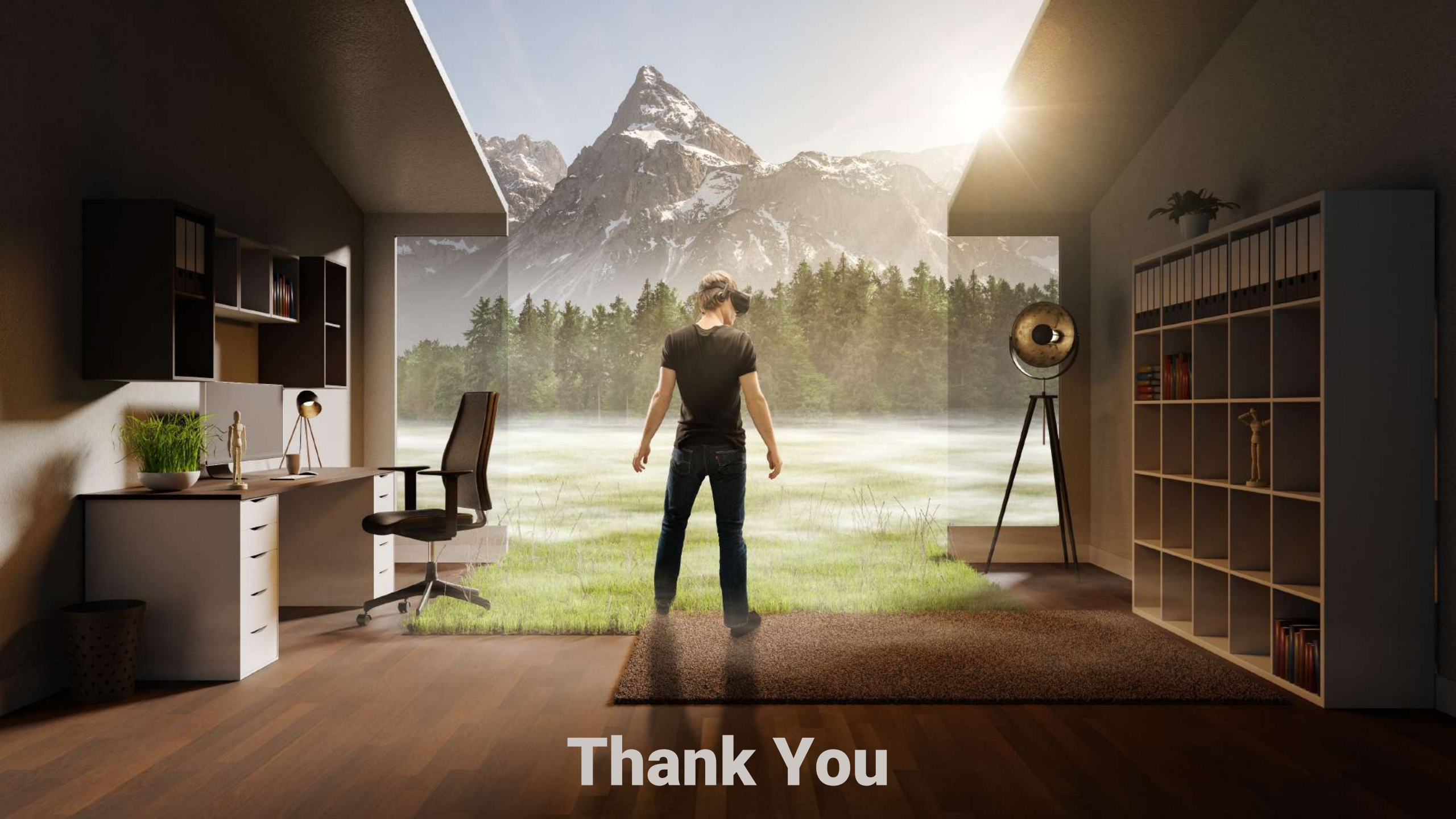
www.unity.com

UNREAL
ENGINE

www.unrealengine.com

Good Apps to Try

1. Twinmotion – Visualize Architectural Environments
2. Unity Reflect – Visualize Architectural Environments
3. Gravity Sketch – VR Modeling Tool
4. Horizon Workrooms – VR Meetings
5. Beat Saber – Fun VR Game ☺
6. Supernatural – VR Workouts in natural environments
7. IKEA Place – Swedish AR Furniture


Thank You

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