ARTISTRY IN A NEW MEDIUM:
LONE ECHO AND THE MAGIC OF VR

NATHAN PHAIL-LIFF | ART DIRECTOR | READY AT DAWN

READY AT DAWN.

OCTOBER 2126
KRONOS II MINING PLATFORM
THE RINGS OF SATURN

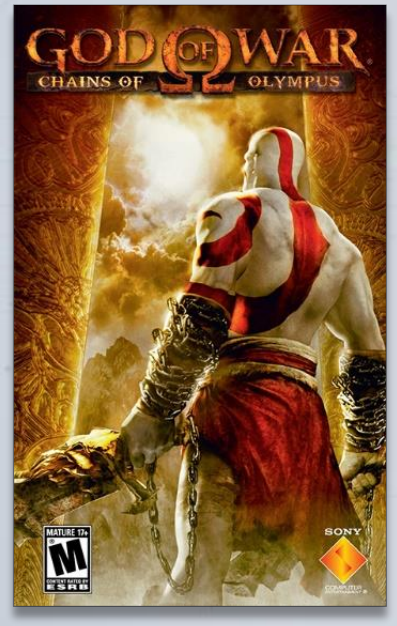
Topics Covered

- Magic (and challenges) of the Medium
  - Immersion, presence, and storytelling
  - Social interactions and multiplayer
  - Content challenges of the medium
- Environmental design considerations for VR
  - New artistic considerations for VR
  - Balancing style for aesthetics and comfort
- Avatar design for presence
  - Unique challenges of avatar design in VR
  - Robot roleplaying: attempting to build a vessel for everyone

Studio History

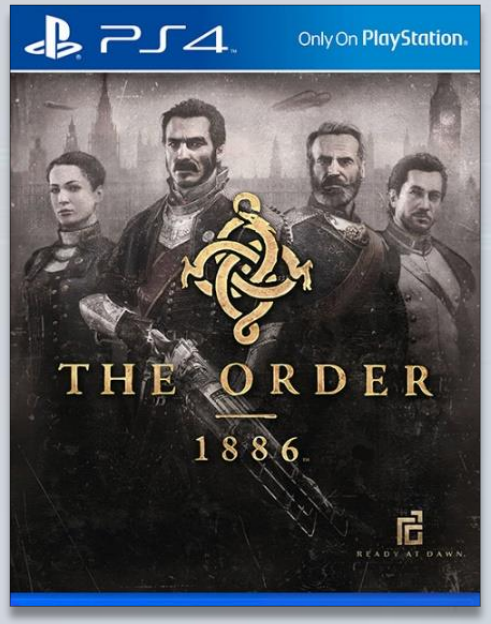
- Founded in 2003
- Developed Daxter, God of War: Chains of Olympus, and God of War: Ghost of Sparta for the PSP
- Built all new engine and tools from scratch for first original IP, The Order: 1886
- Recently shipped Deformers, original IP MOBA (released across PS4, XB1, and PC)

2006



2008

2010



2015

2017

Lone Echo / Echo Arena

2017

- Development began mid 2015
- Team size of about 45
- Built on engine from The Order: 1886
- Born out of idea for comfortable, free locomotion

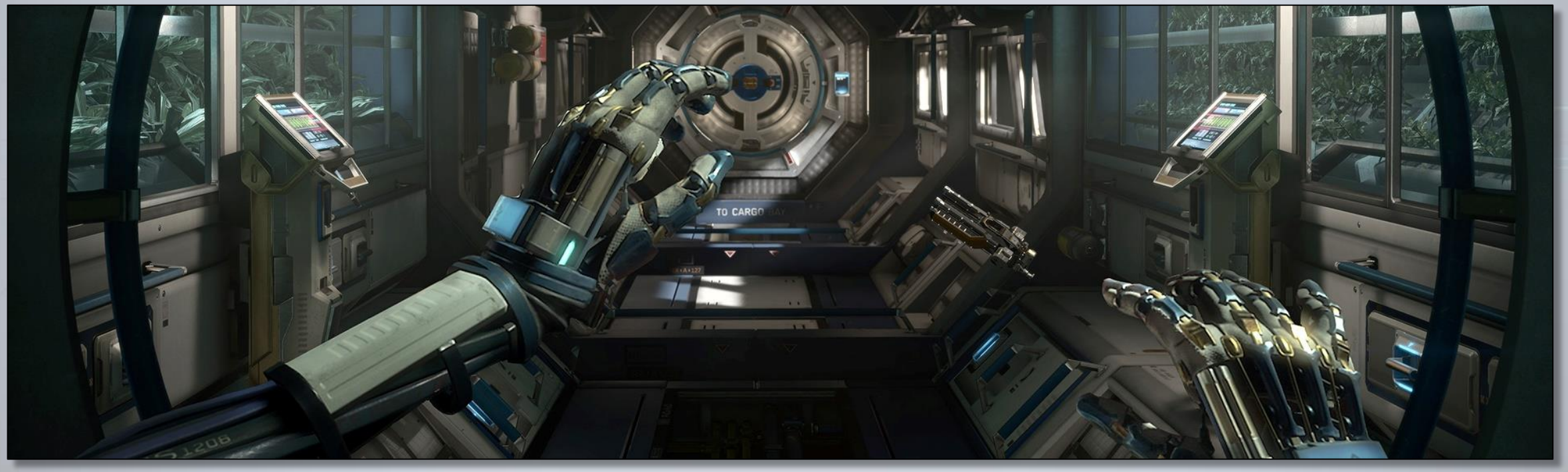
- Additional goals and challenges
  - AAA quality, but made ground-up for VR
  - Ambitious visuals, aggressive perf target
  - Not so 'Lone Echo'

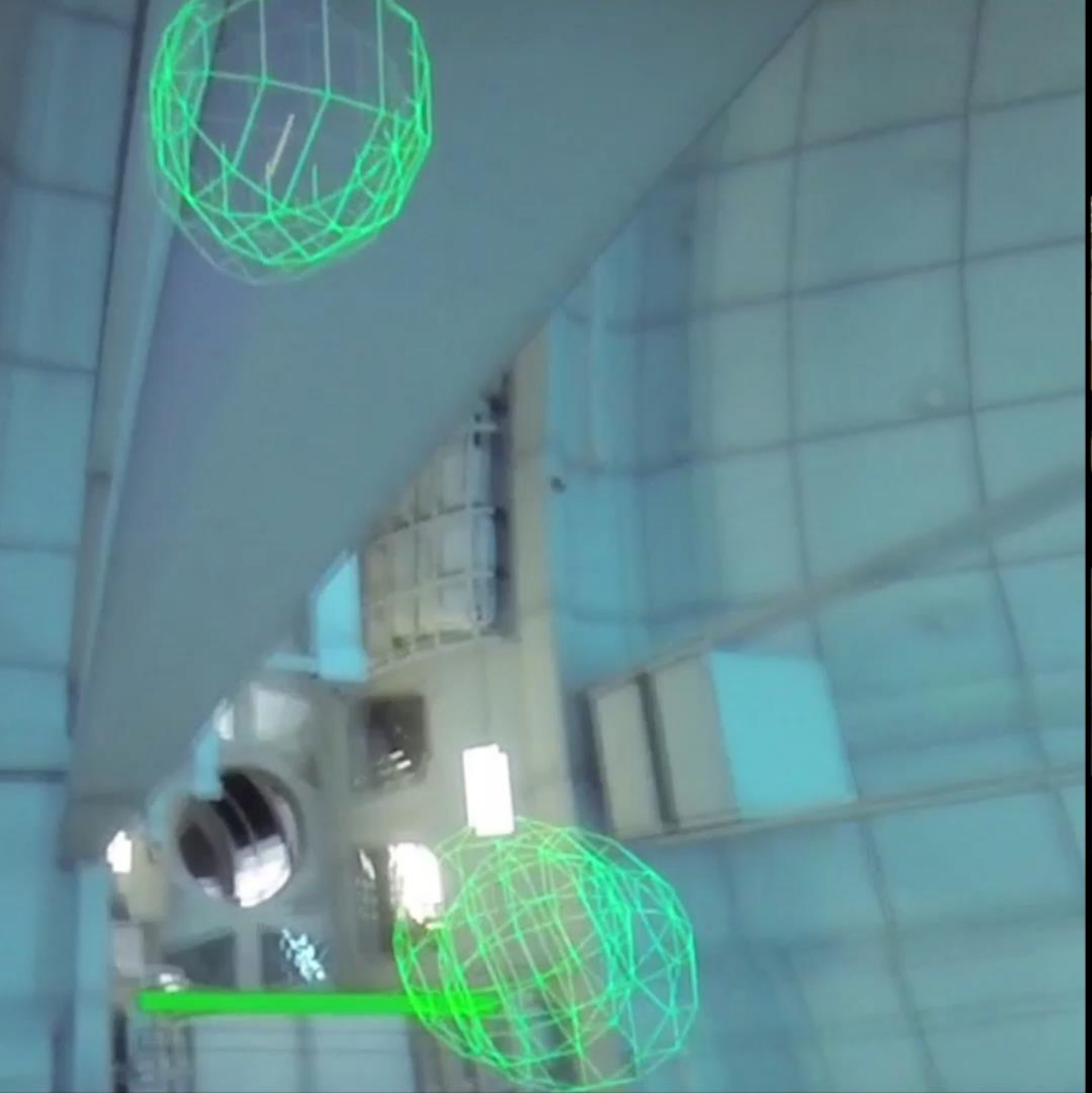
Part I:
LONE ECHO AND THE MAGIC OF VR

THE MAGIC OF THE MEDIUM

Magic of the Medium: Presence and Immersion

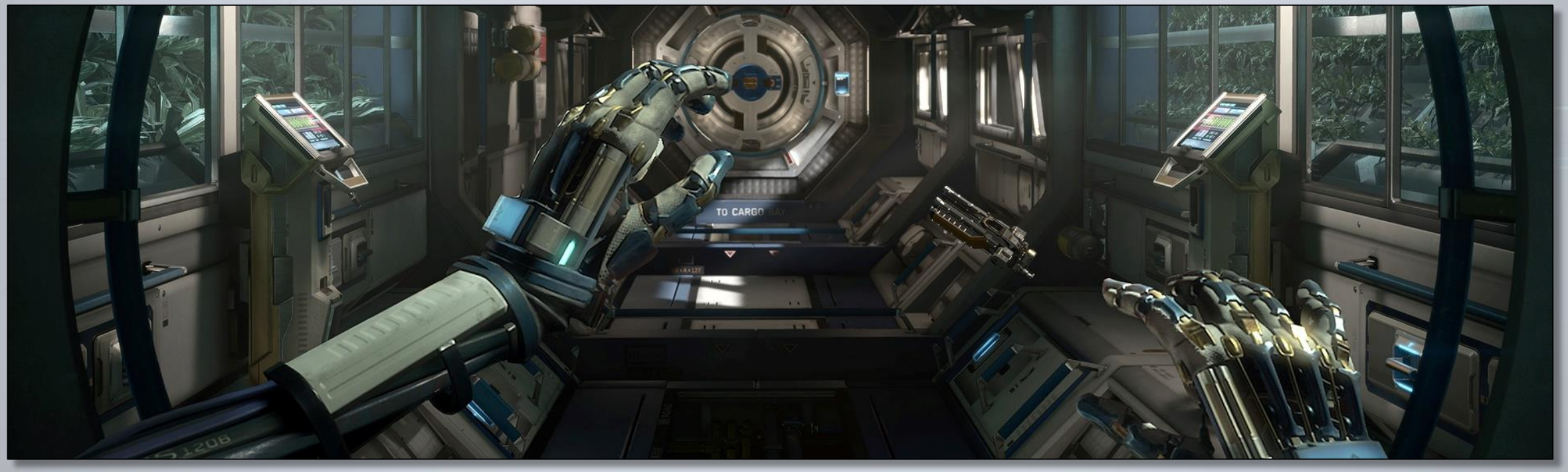
- Complete suspension of disbelief
- More direct relationship with virtual world





Magic of the Medium: Presence and Immersion

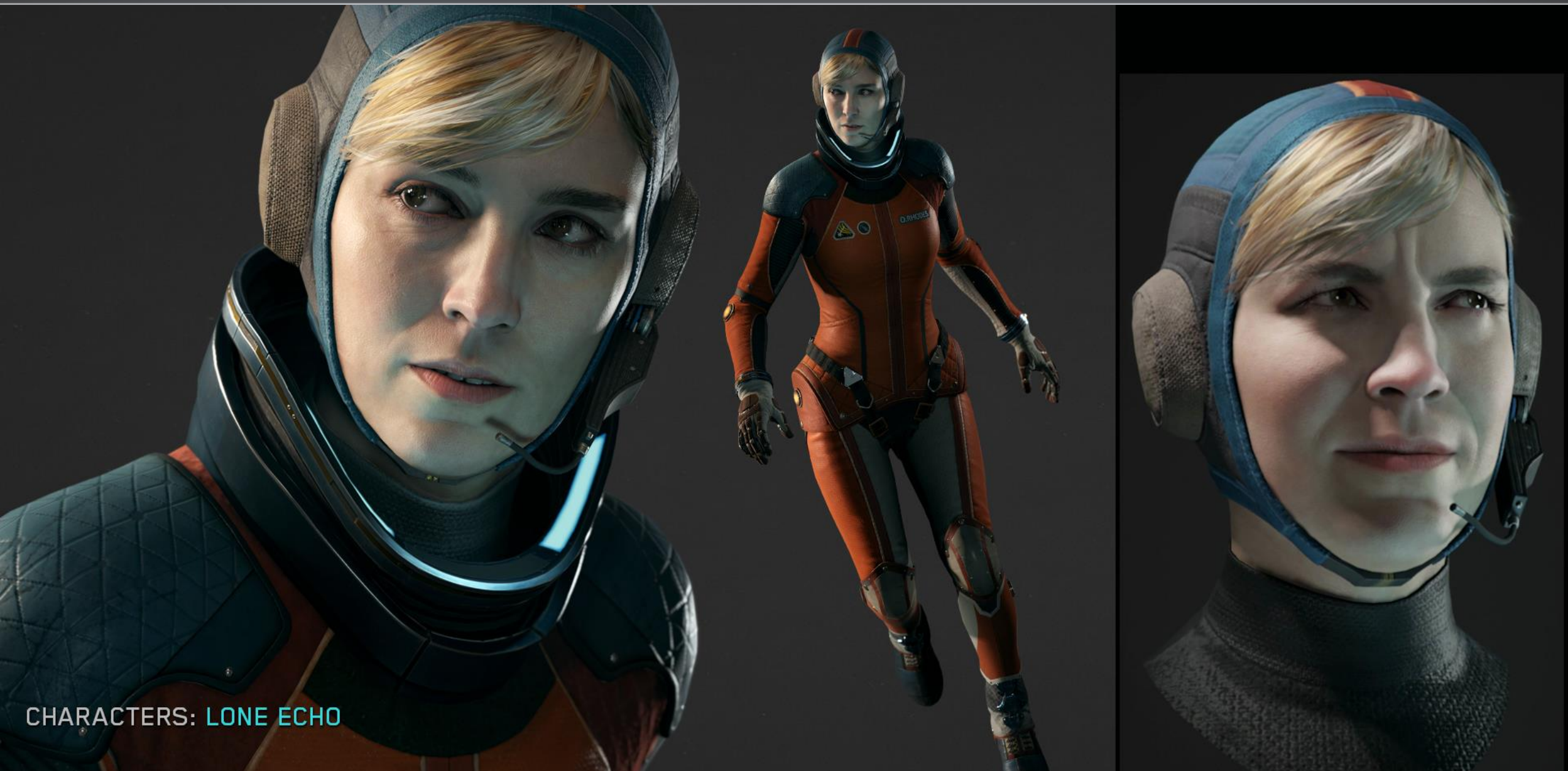
- Complete suspension of disbelief
- More direct relationship with virtual world
- Real dreams and formed memories from a virtual experience

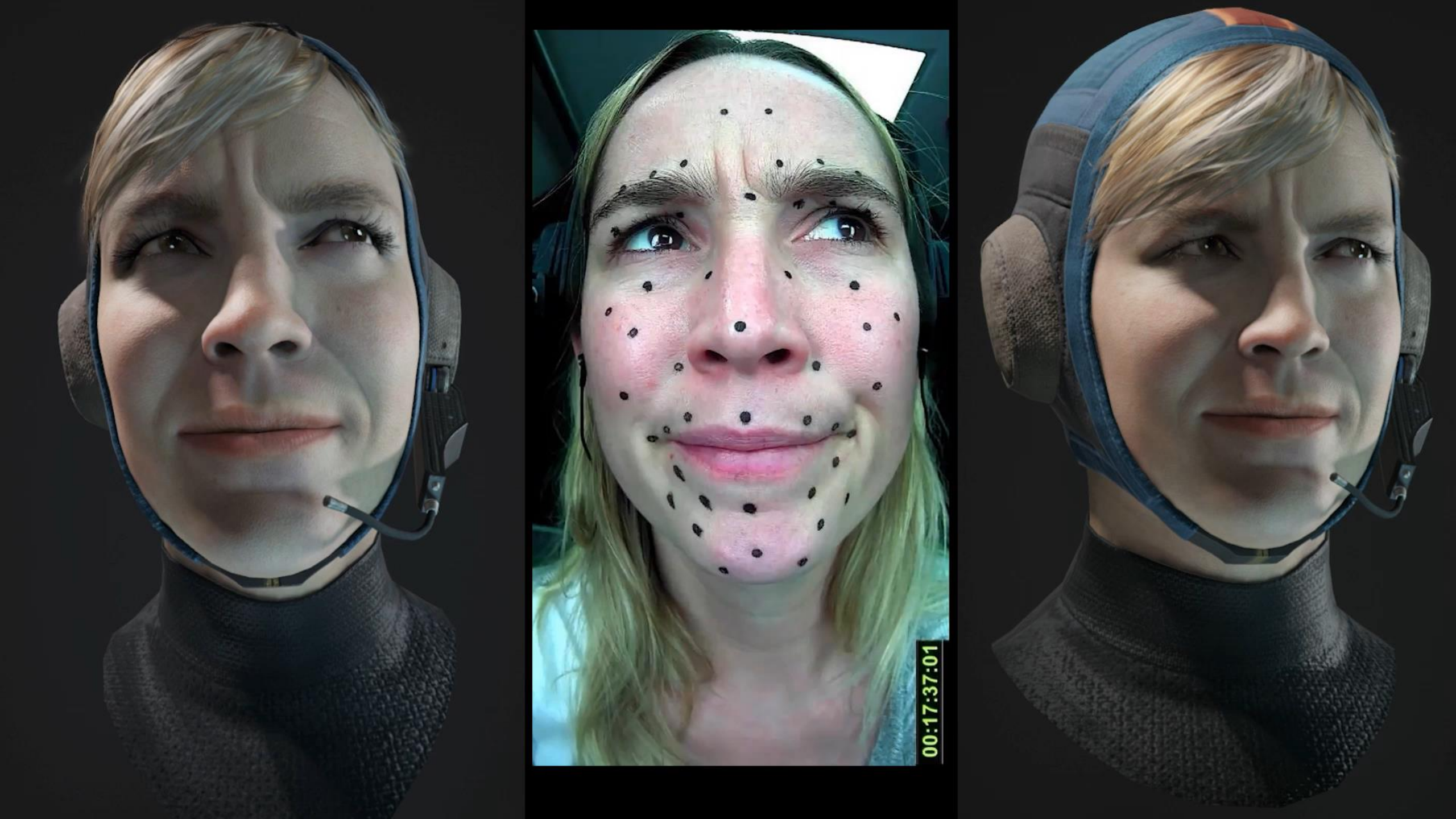


Magic of the Medium: Characters and Storytelling

- Forming an emotional bond with a virtual character
- Richer acknowledgement of player presence

Magic of the Medium: Characters and Storytelling

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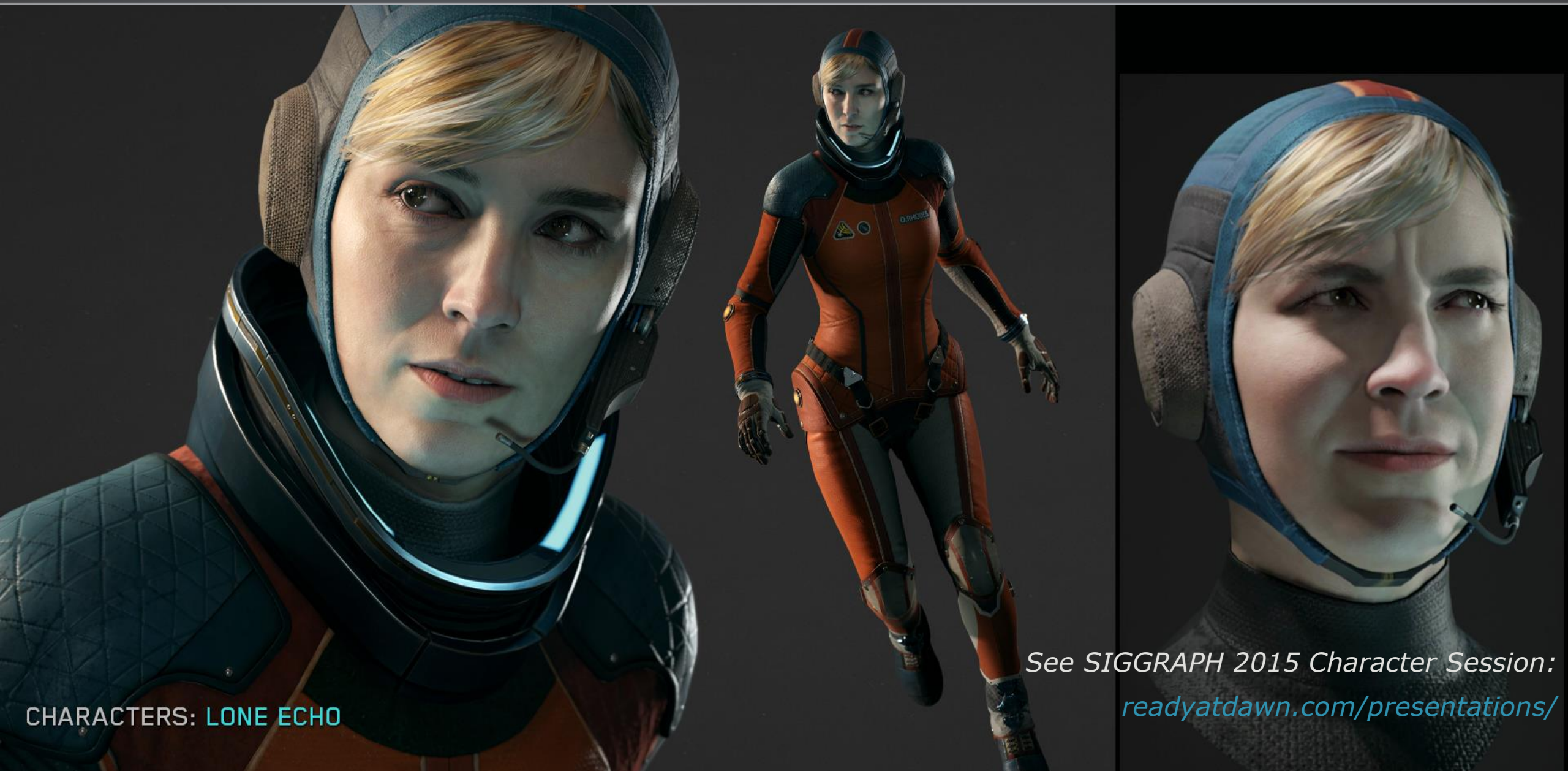

See SIGGRAPH 2015 Character Session:

readyatdawn.com/presentations/

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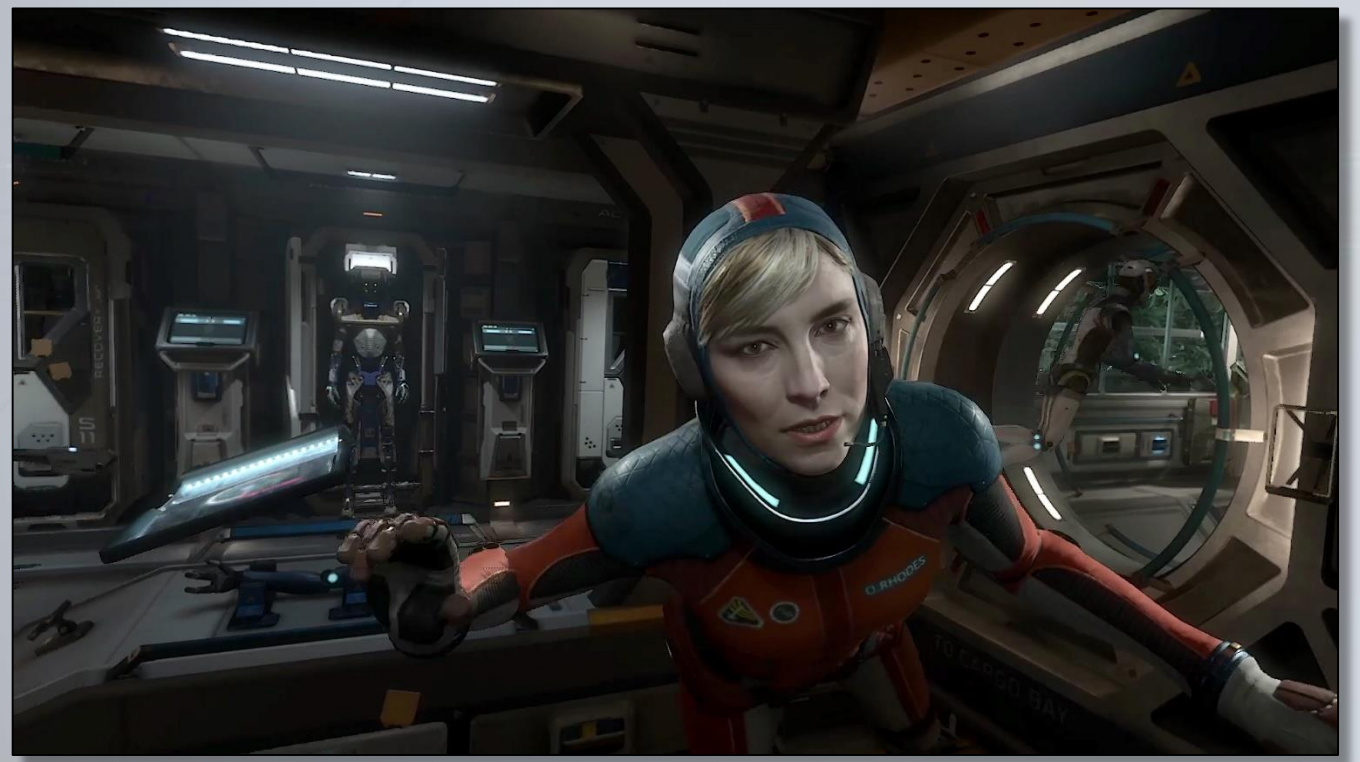

ACTIVATION
UNIT
OLIVIA RHODES
RECOVERY UNIT
PORT
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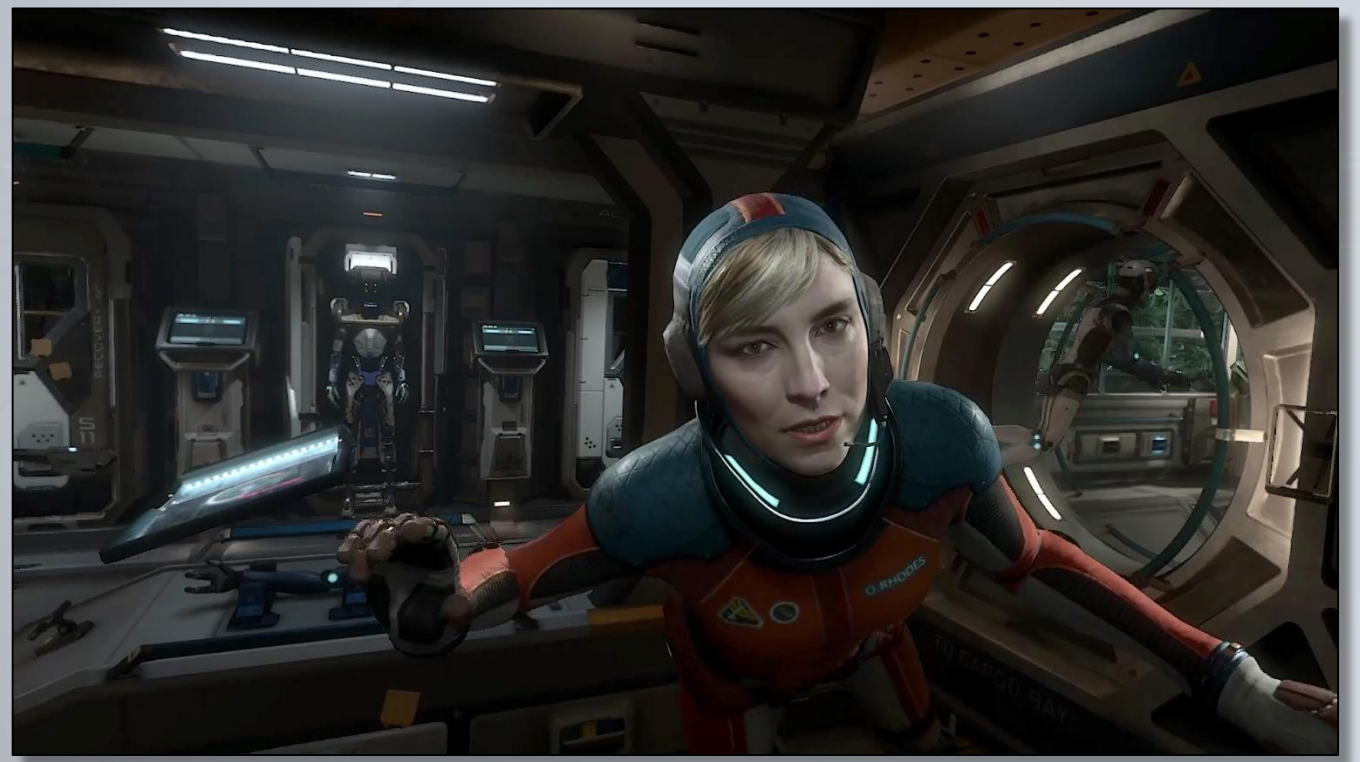
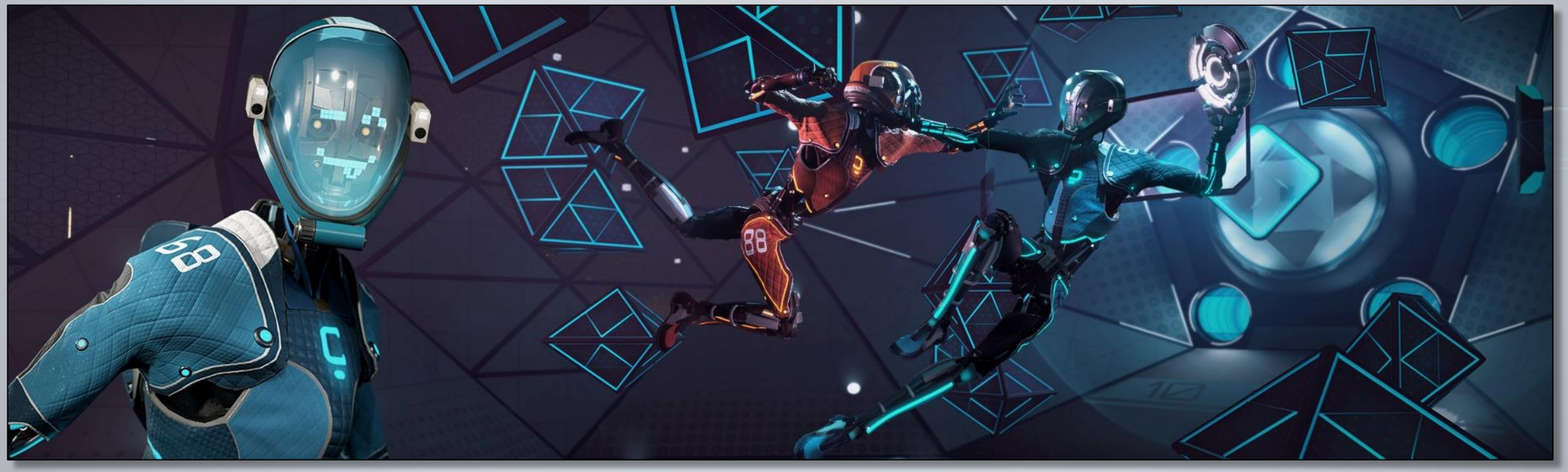


Magic of the Medium: Multiplayer and Social

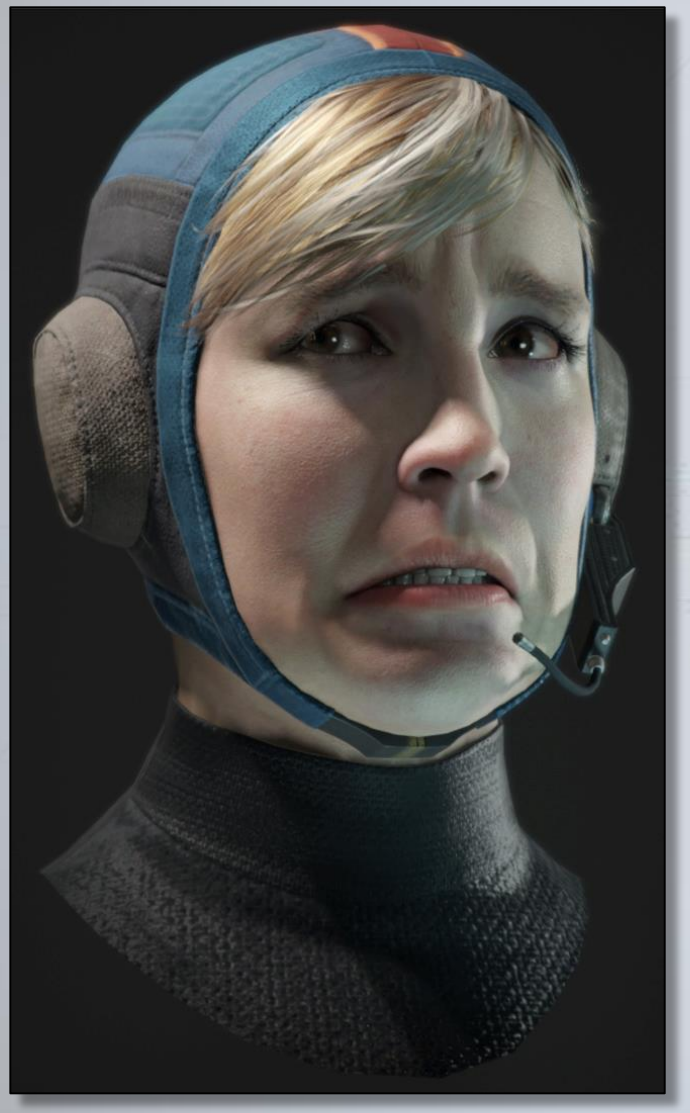
- One-to-one head, hand, finger tracking, voice and spatial audio
- Incredible depth of social interaction and expression
- Team play and physical interaction



twitch.tv/Dual8TV
50 slimjimbeam
WoodsFiend
50 Boomotang
9.6 M/s

Magic of the Medium: Multiplayer and Social

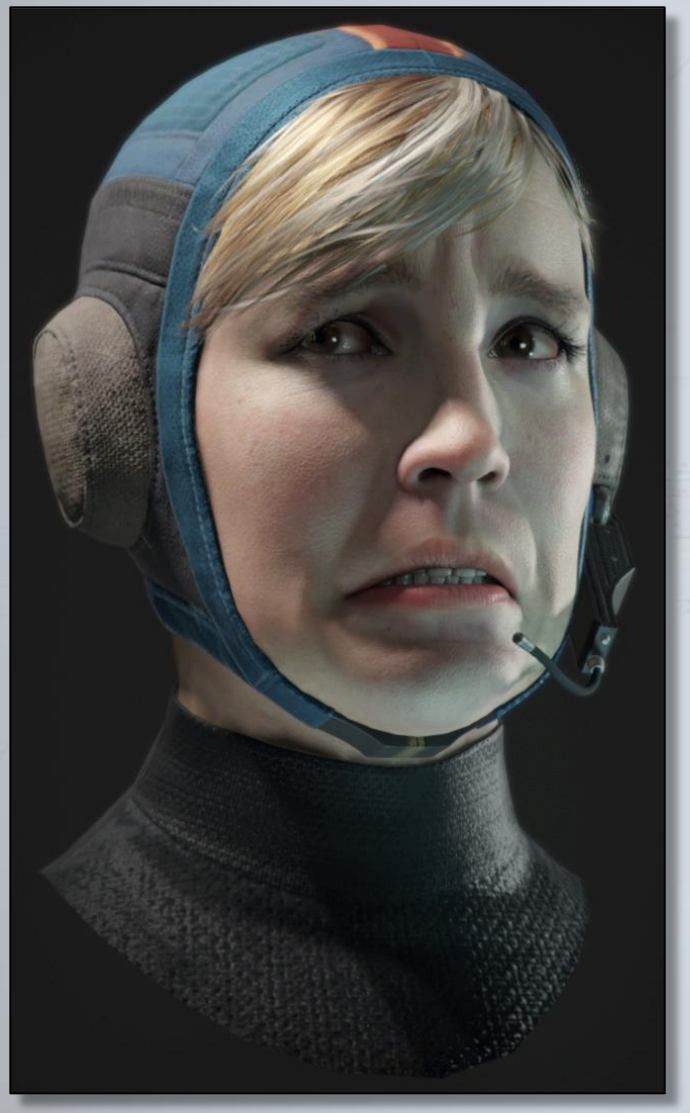
Challenges of the Medium



Content Challenges

- Very aggressive performance target

Challenges of the Medium



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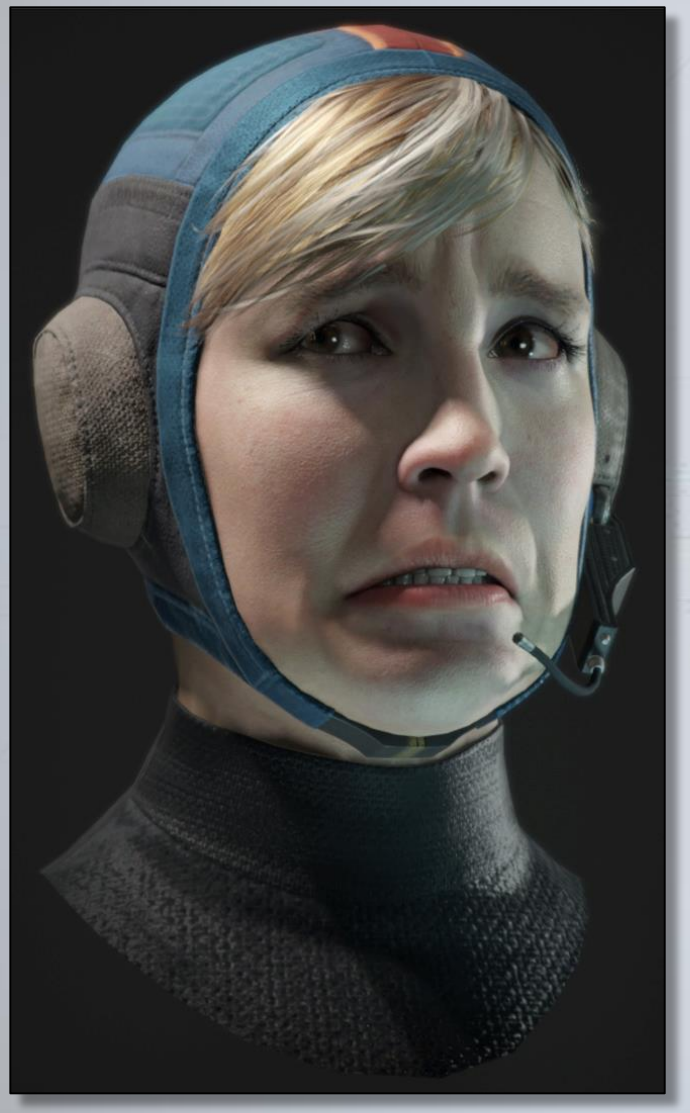
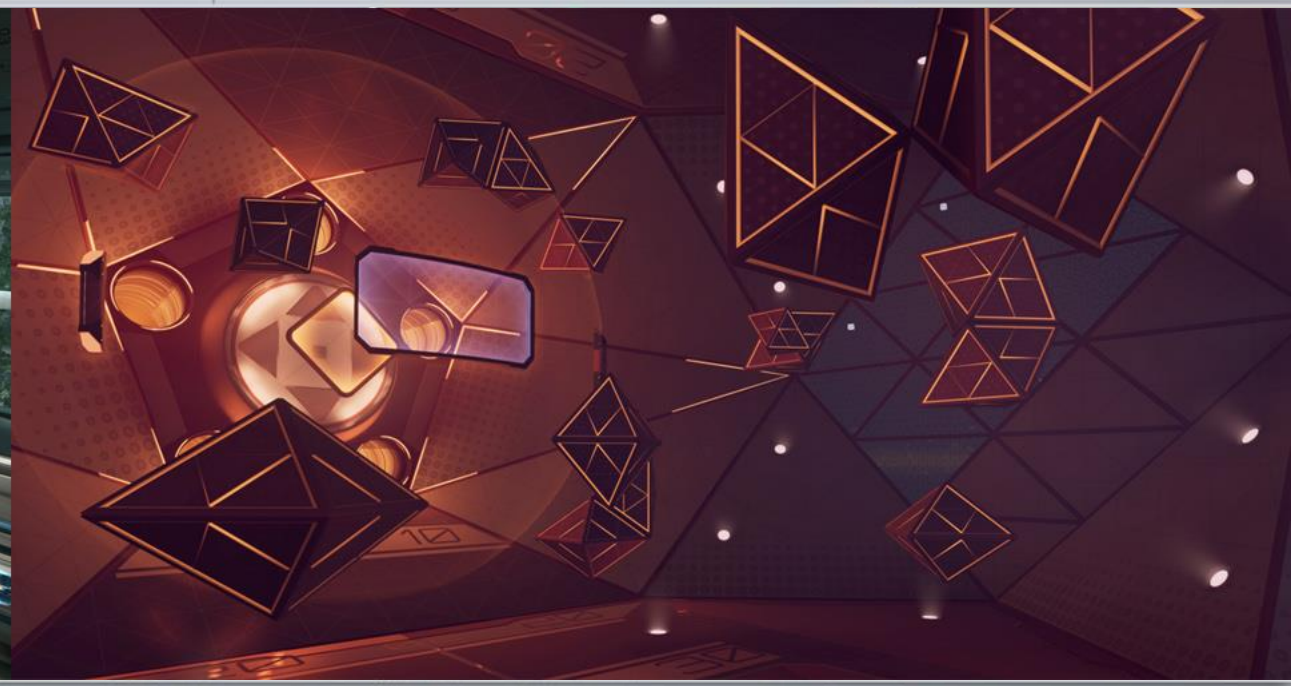


Content Challenges

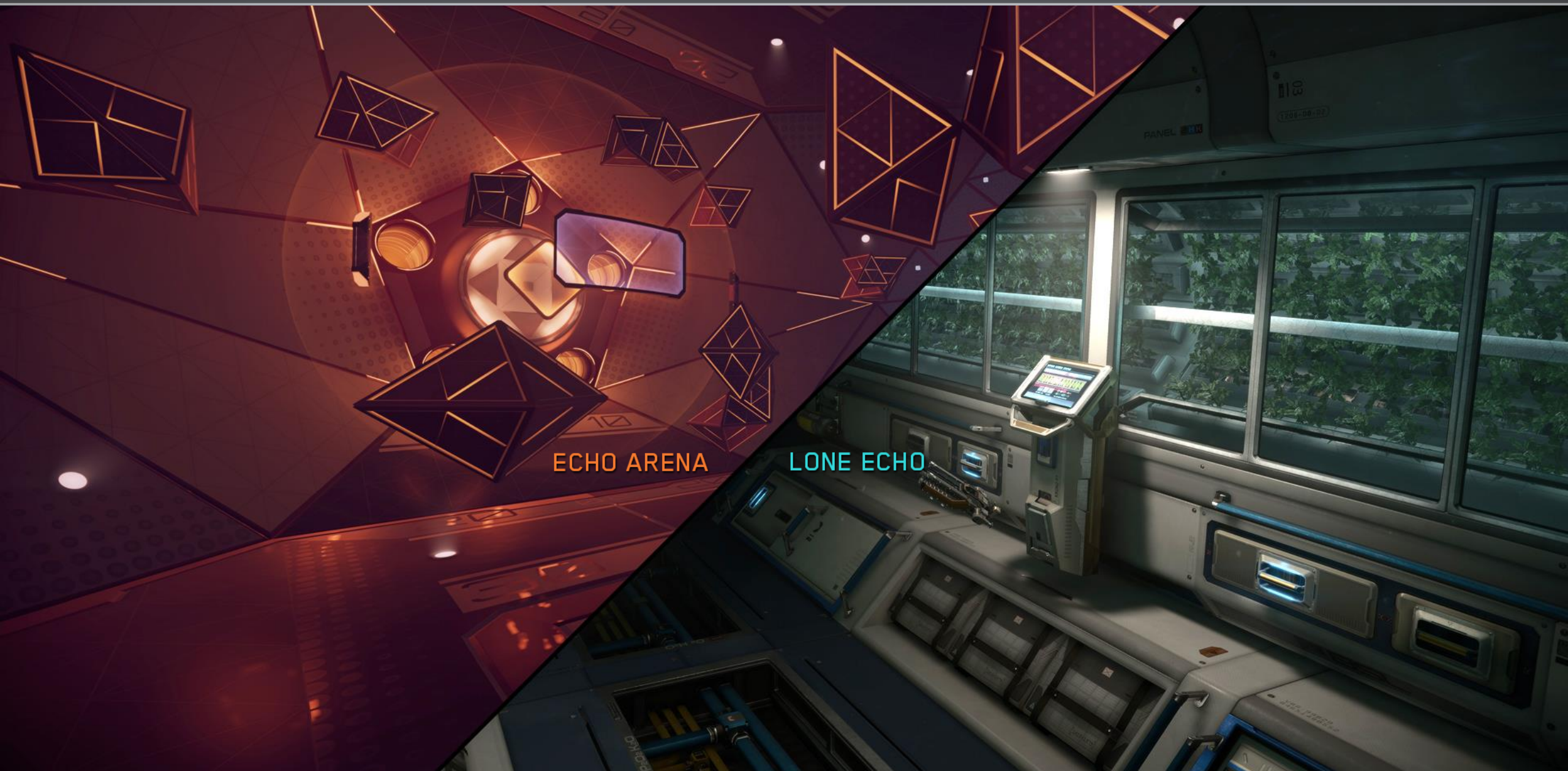
- Very aggressive performance target
- Forgetting what you know
- Comfort is king!

Part II:
LONE ECHO AND THE MAGIC OF VR



ENVIRONMENT DESIGN CHOICES FOR VR

Style Comparison



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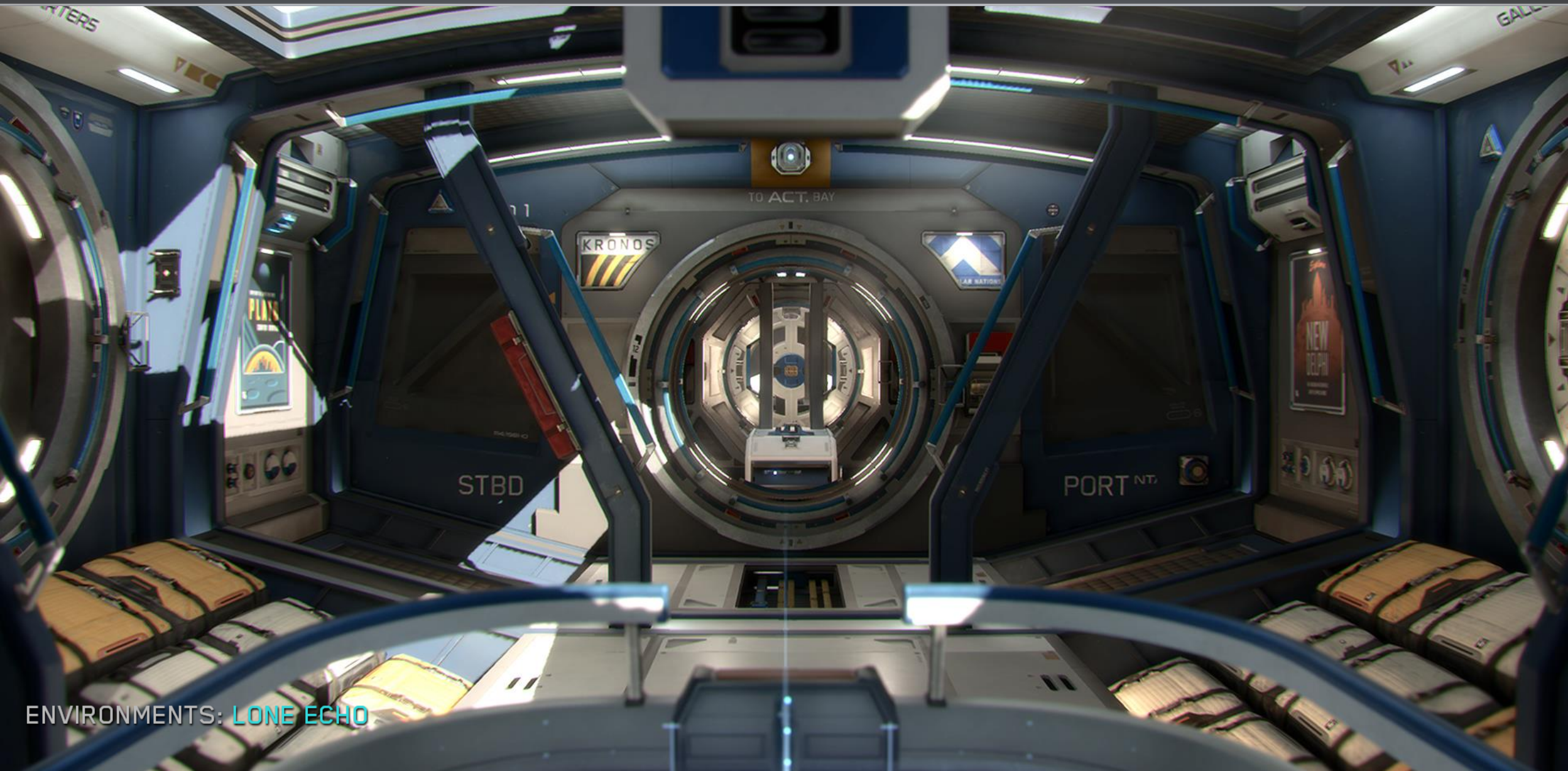

ENVIRONMENTS: LONE ECHO

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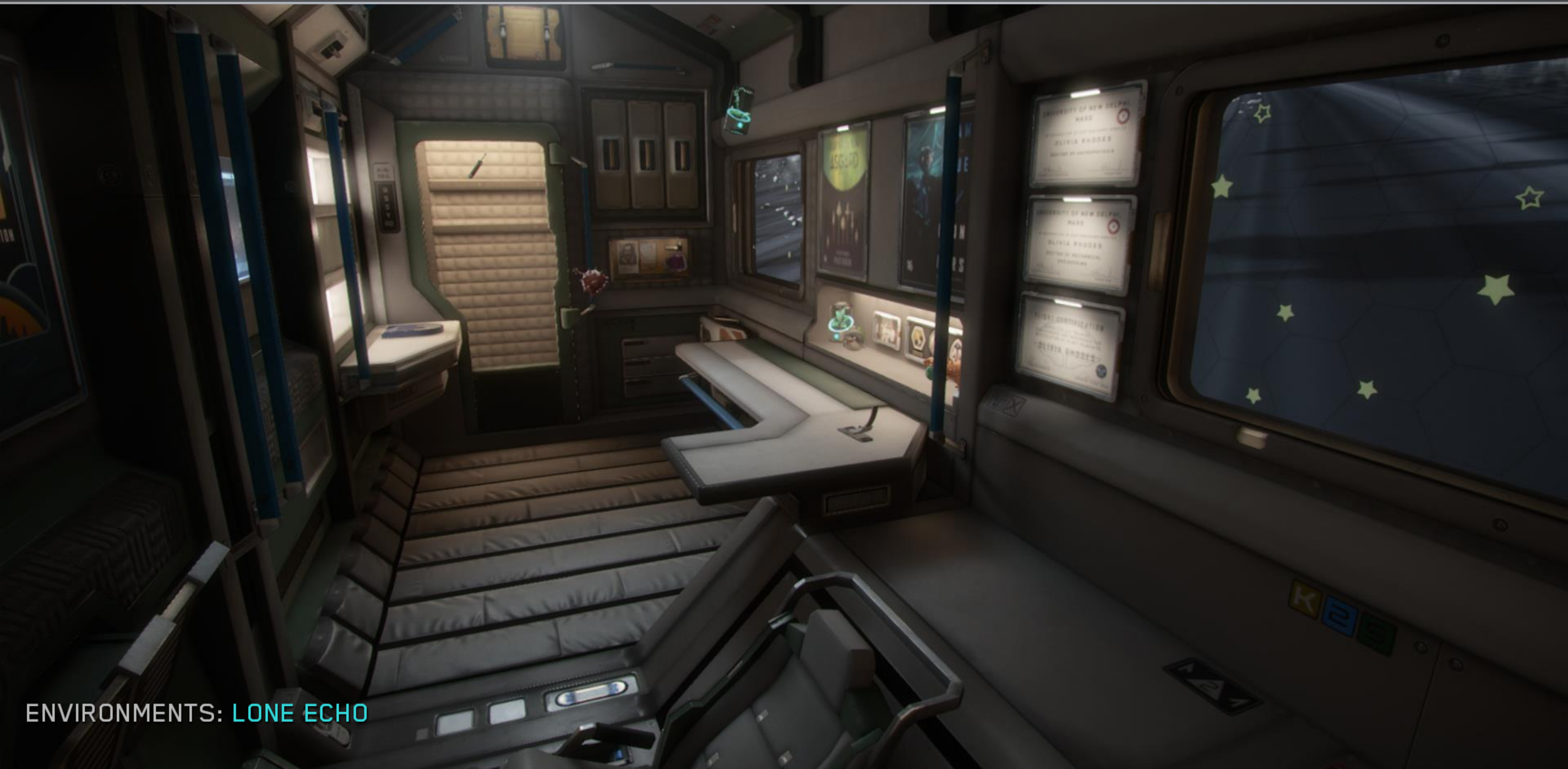

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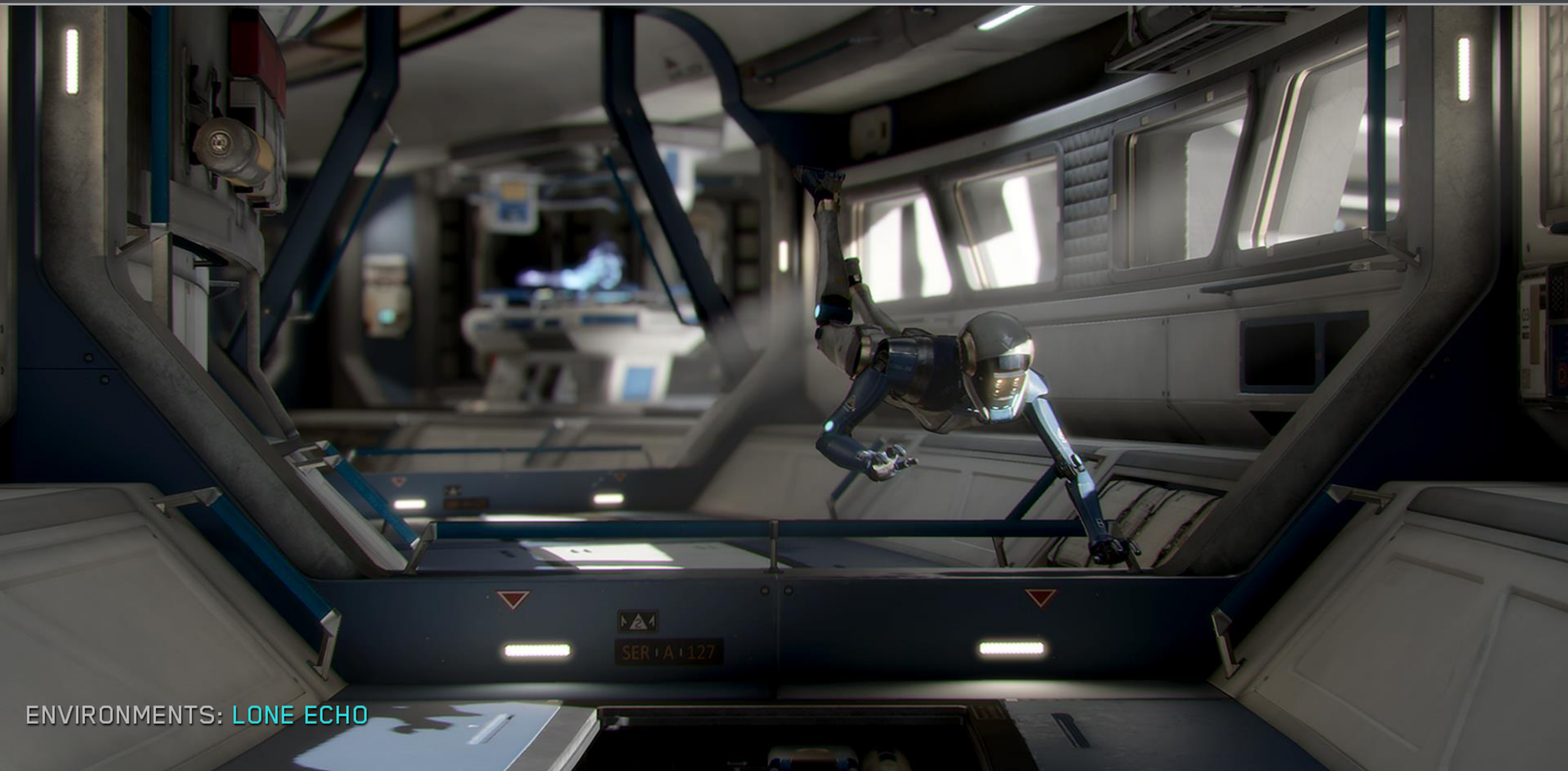

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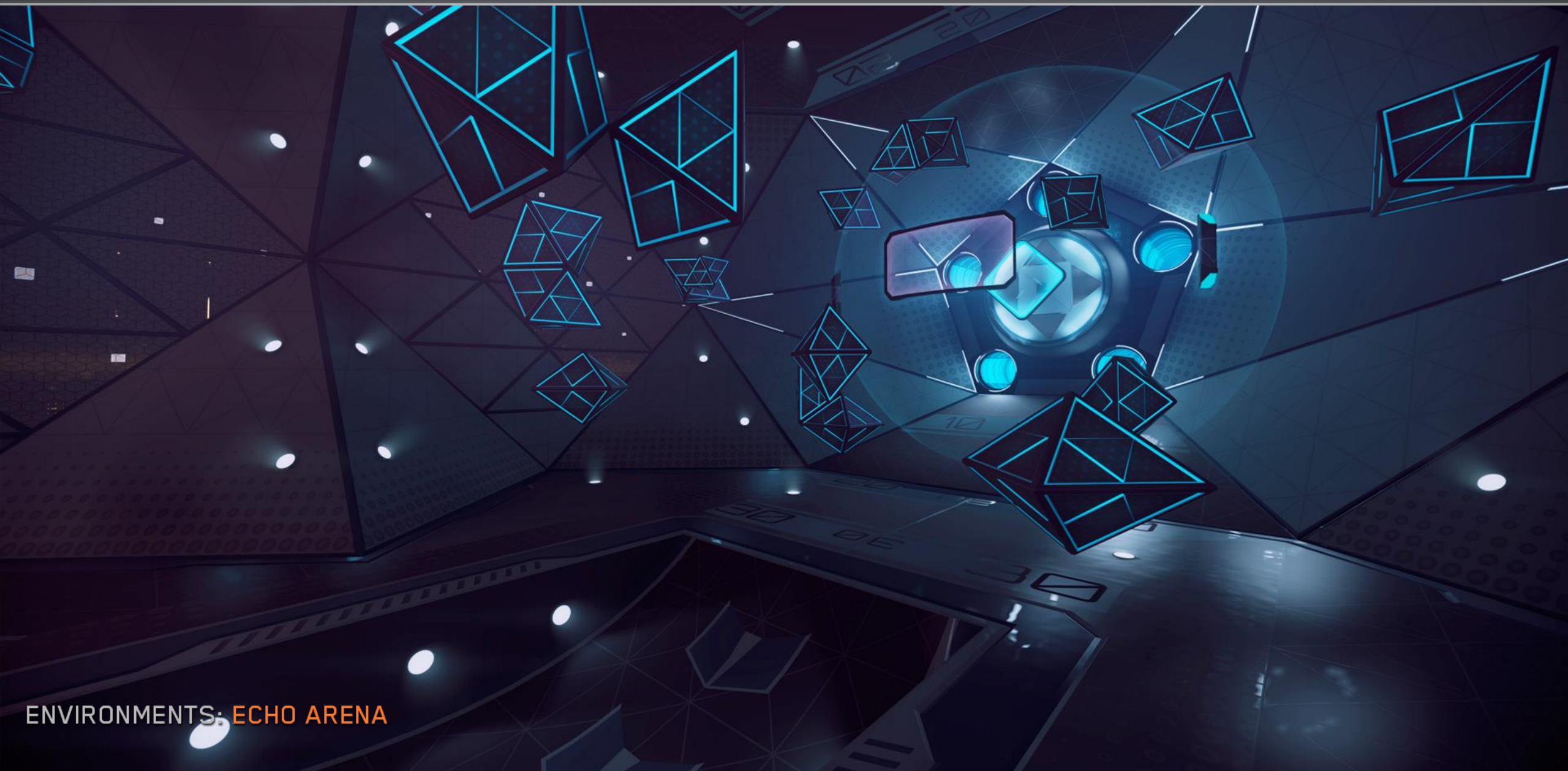

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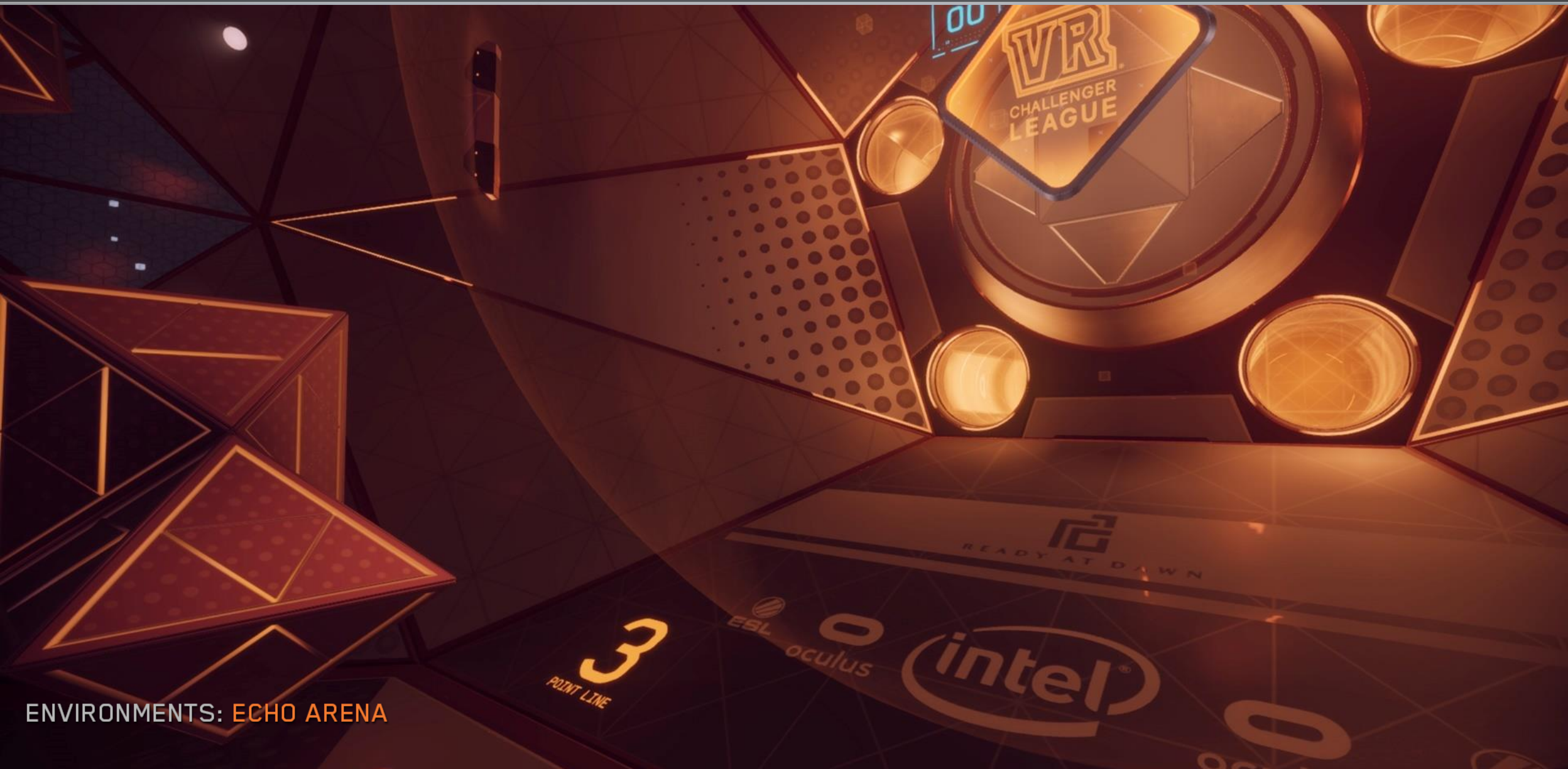

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Style Comparison

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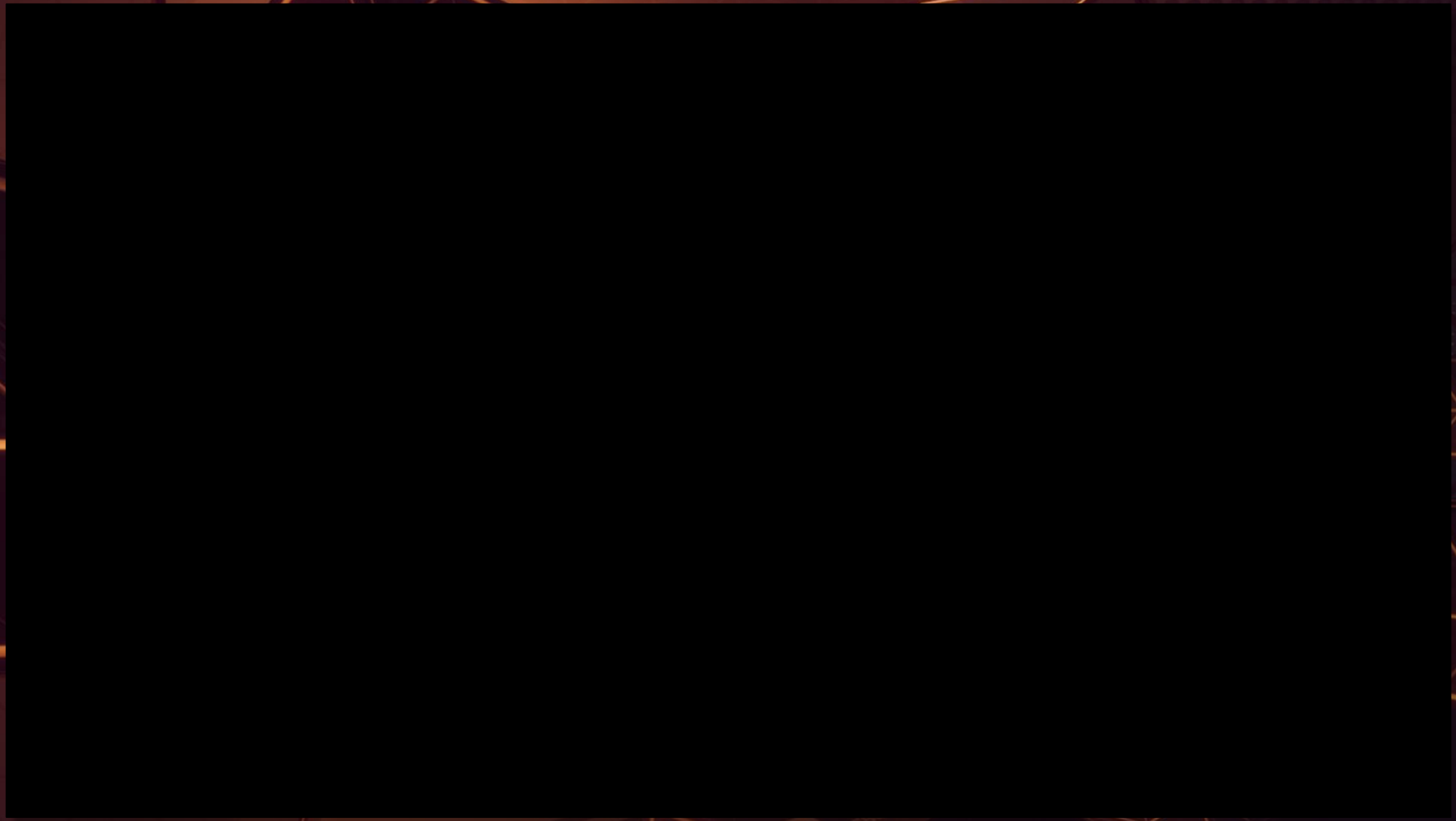
Comfort and Environmental Design



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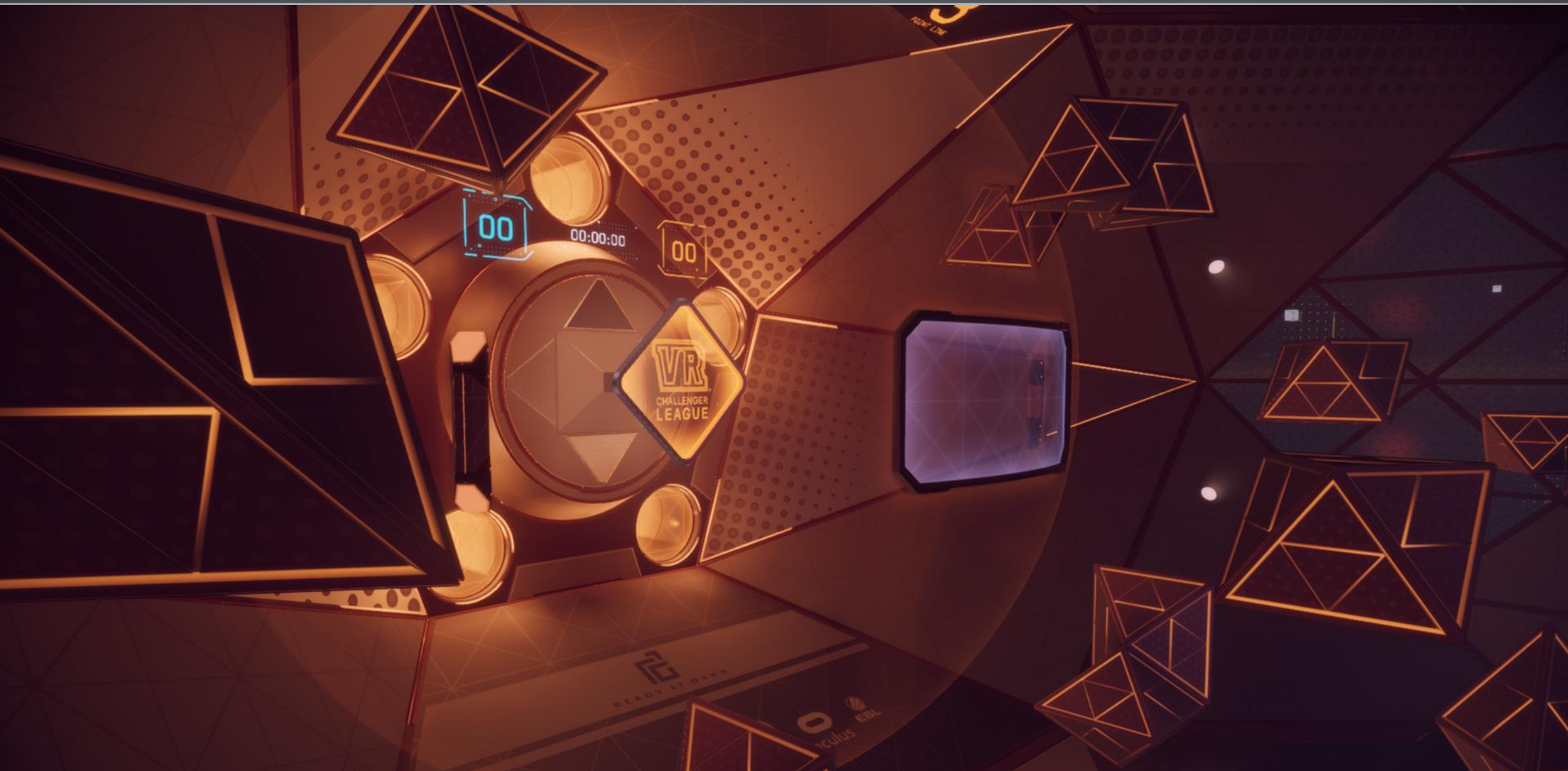

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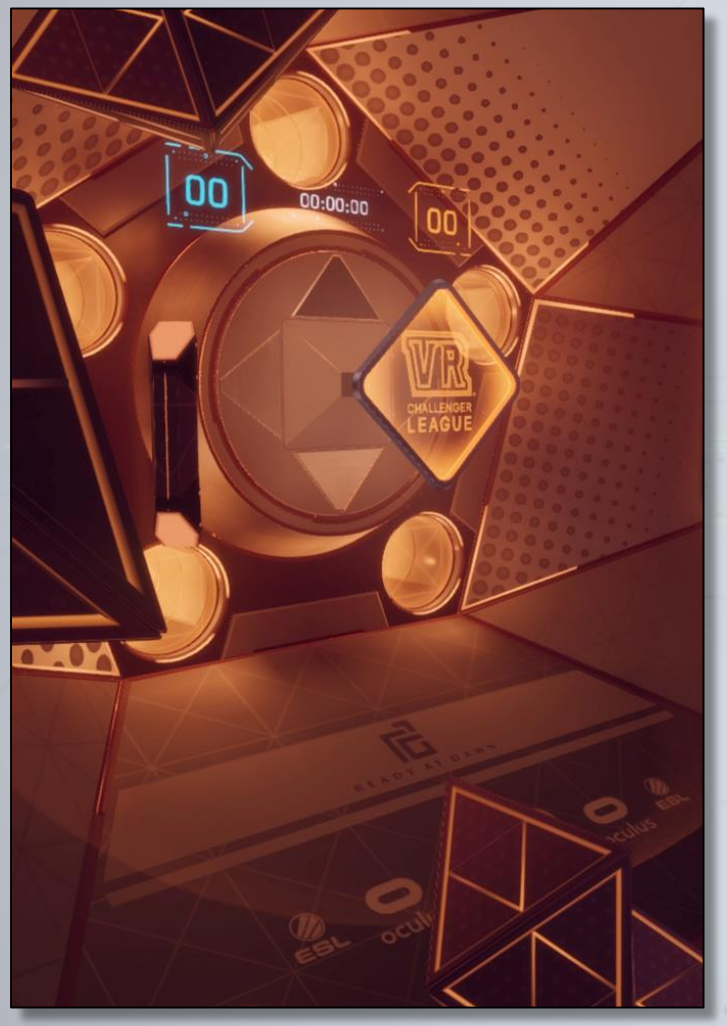
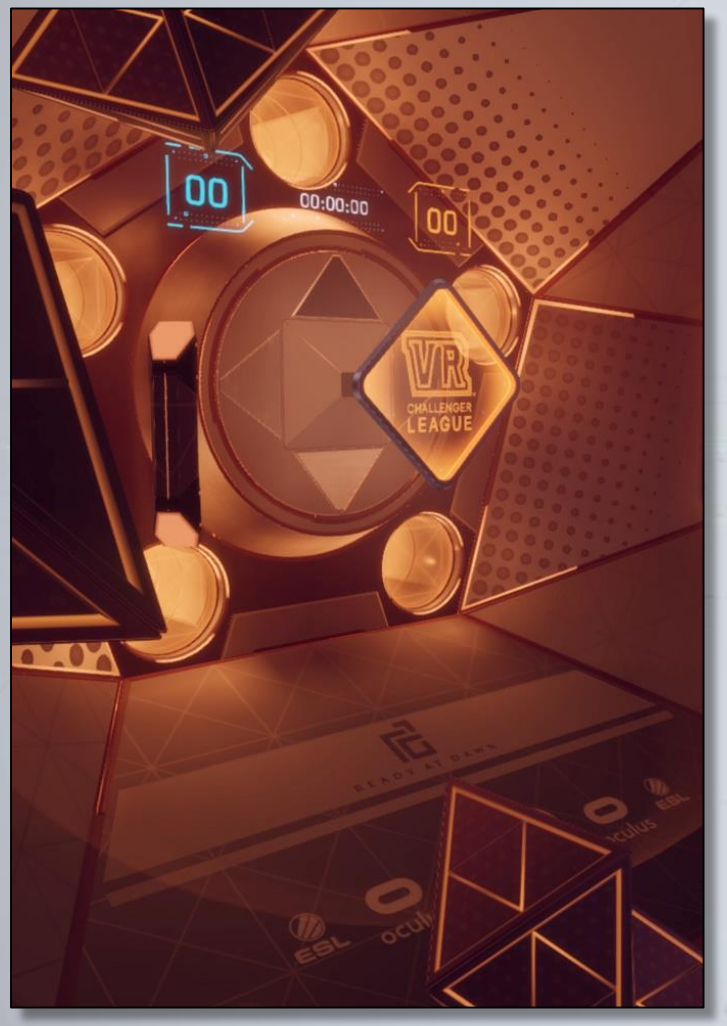


Key considerations for visual comfort

- Value contrast

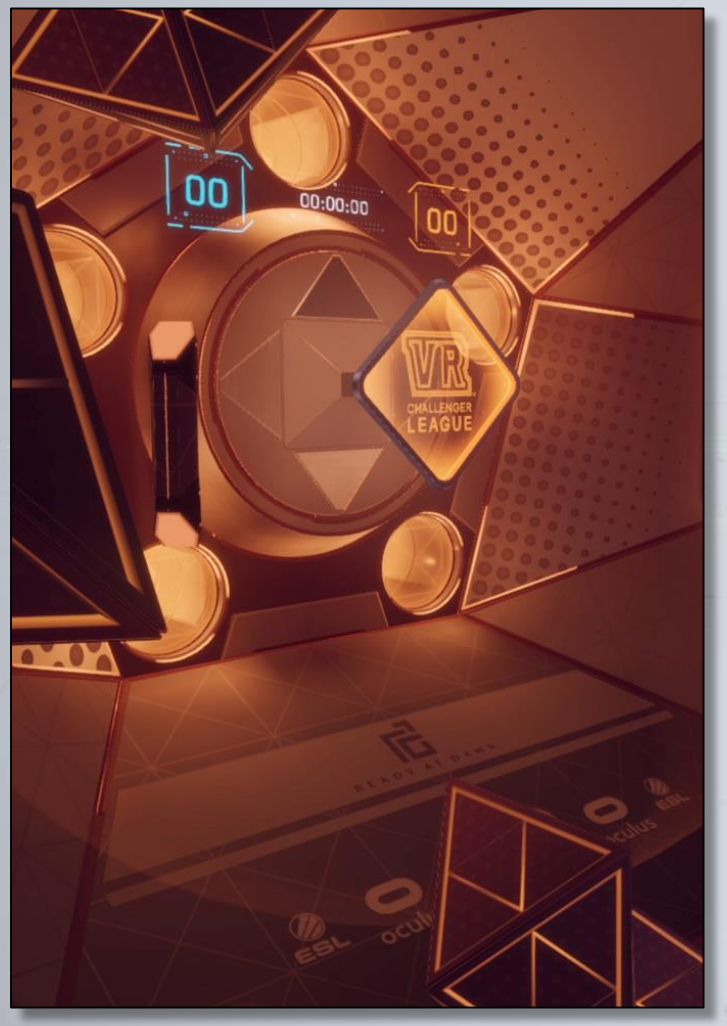
Comfort and Environmental Design



Key considerations for visual comfort

- Value contrast
- Pixel flow (too much, or too little can be bad)

Comfort and Environmental Design



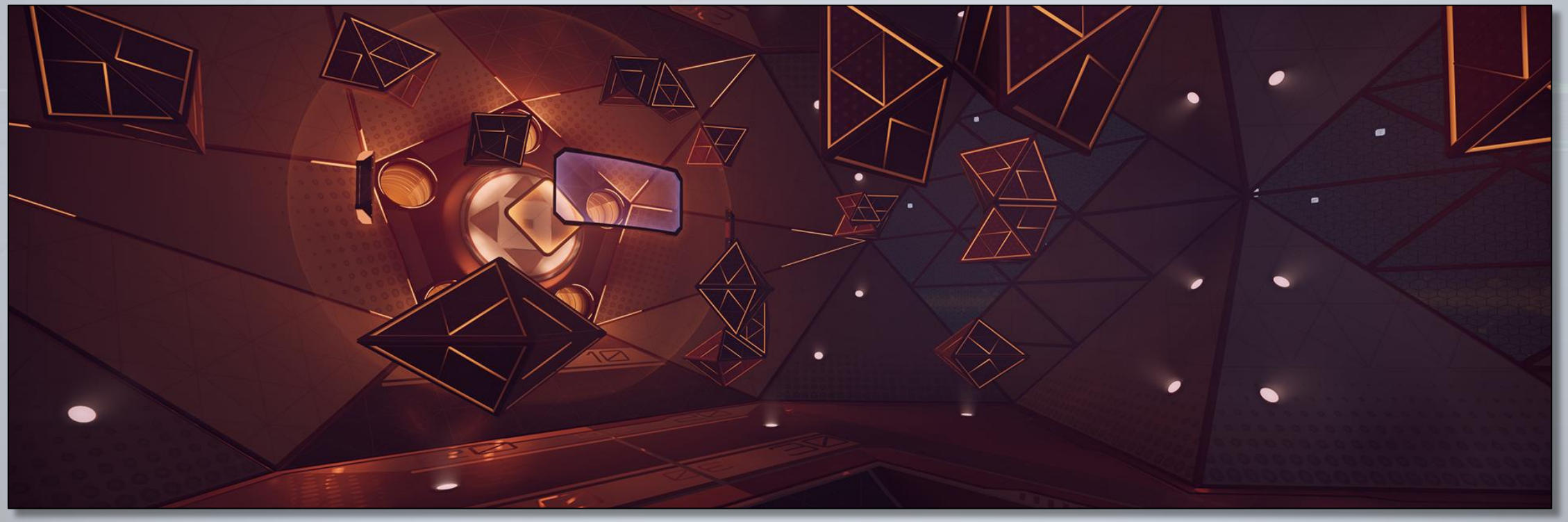
Key considerations for visual comfort

- Value contrast
- Pixel flow (too much, or too little can be bad)
- Motion and object proximity

Comfort and Environmental Design

Lighting and value contrast

- Target narrower range of mid-tone values
- Avoid stark white or black values completely



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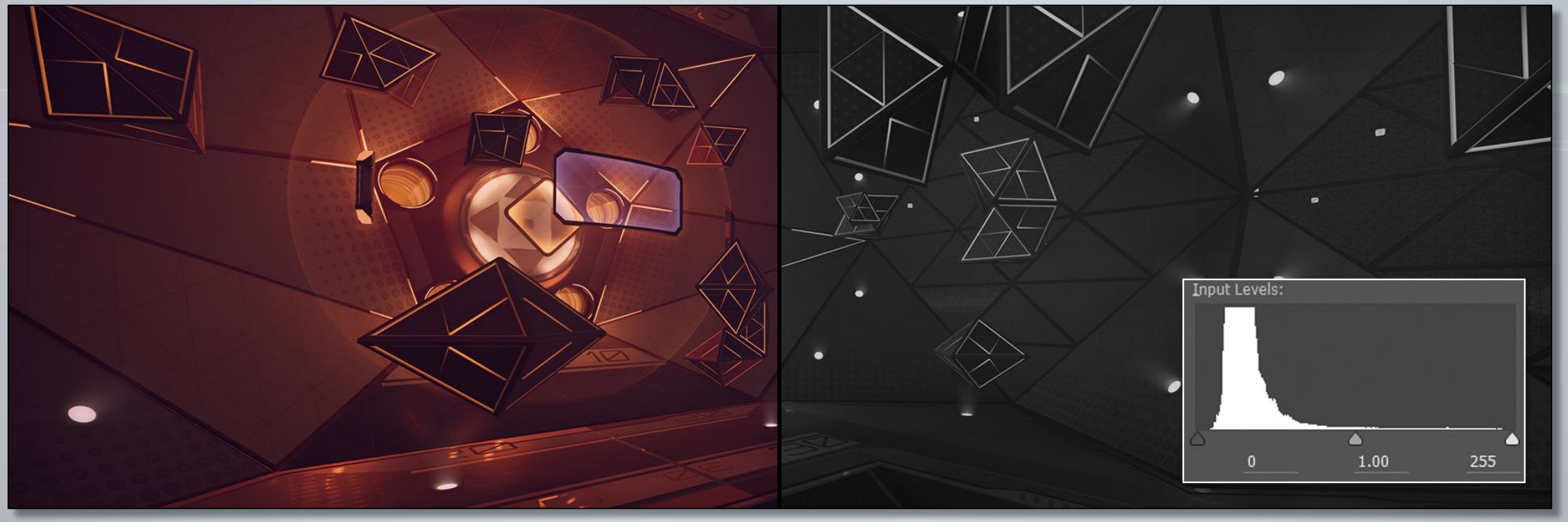

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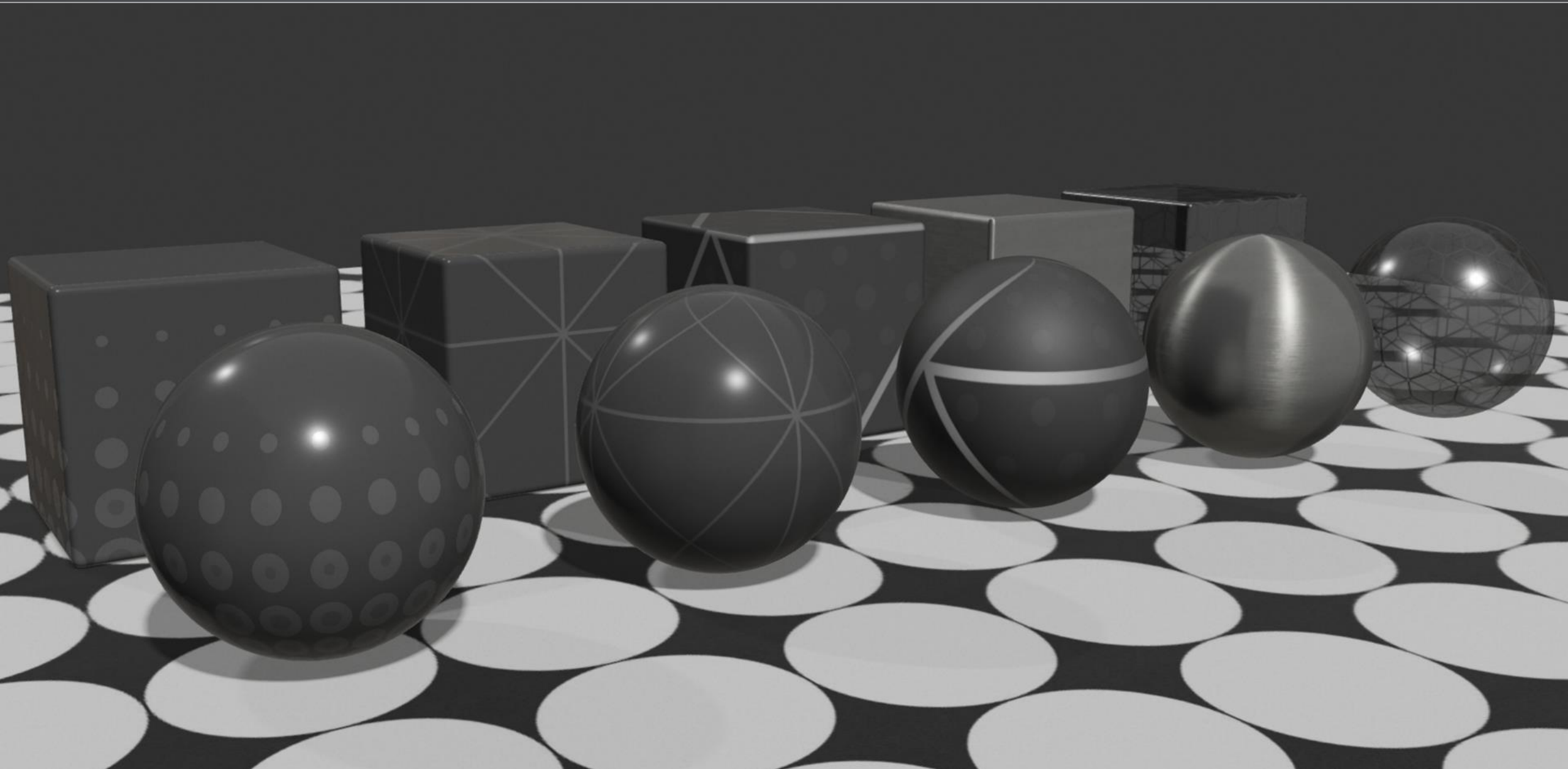

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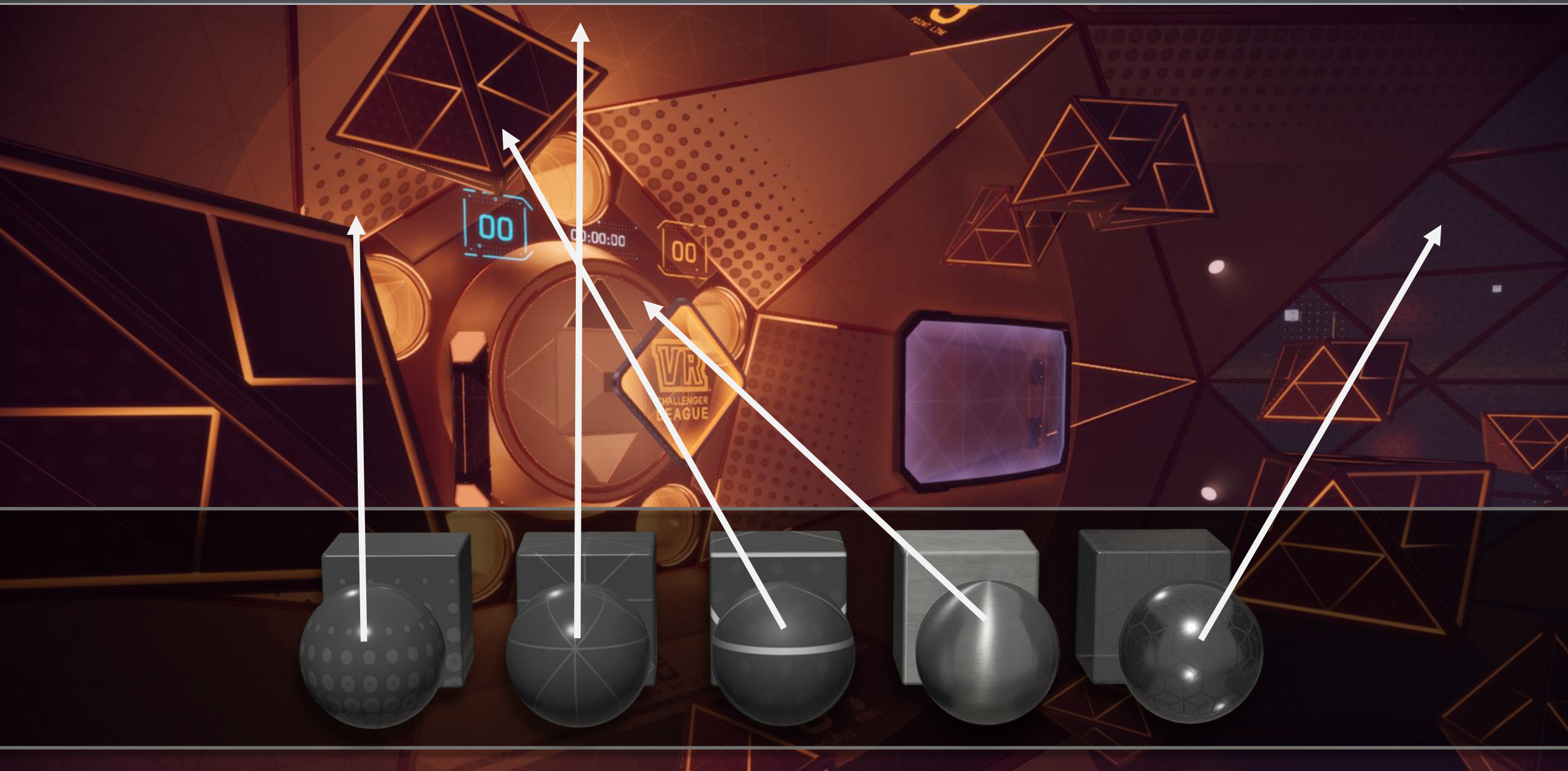

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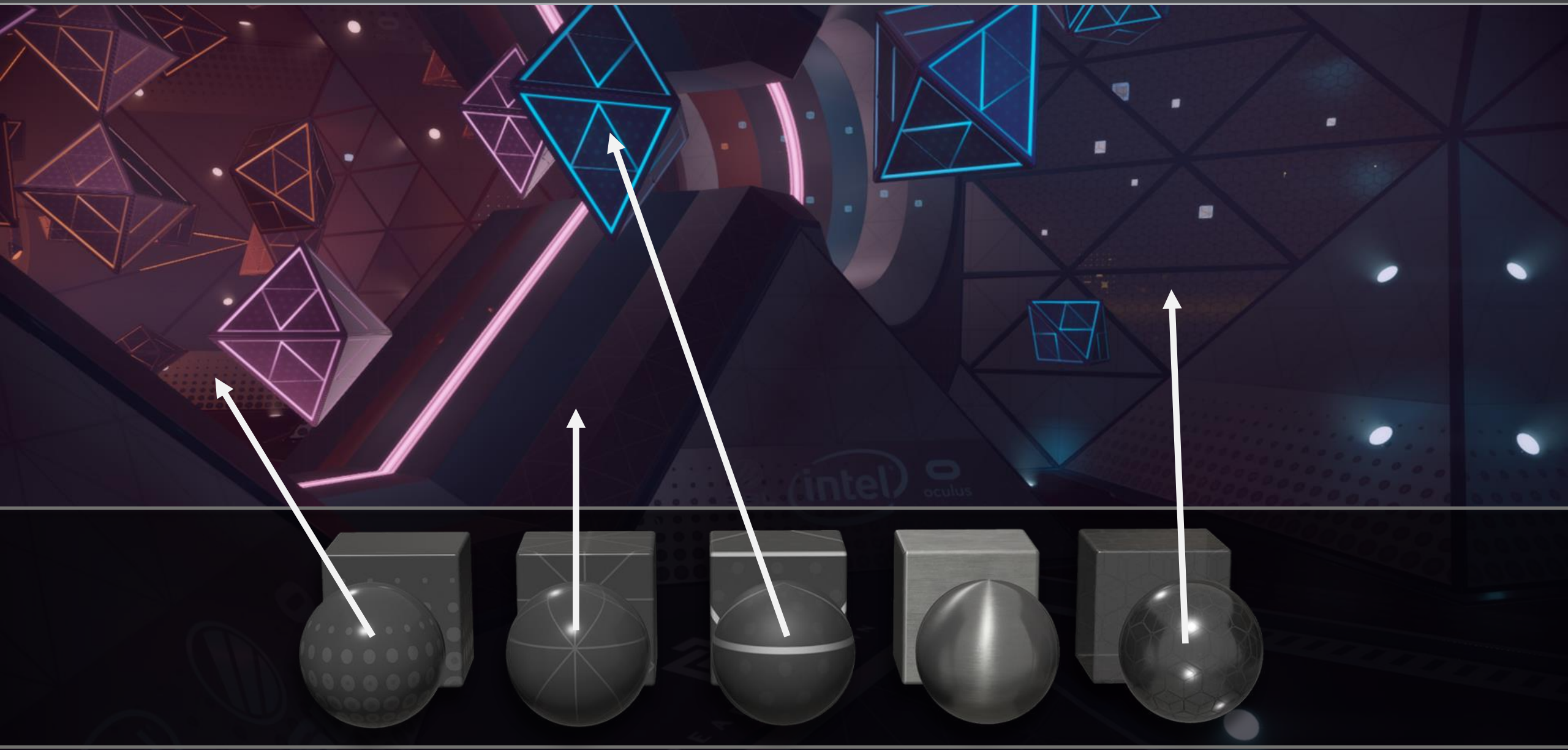

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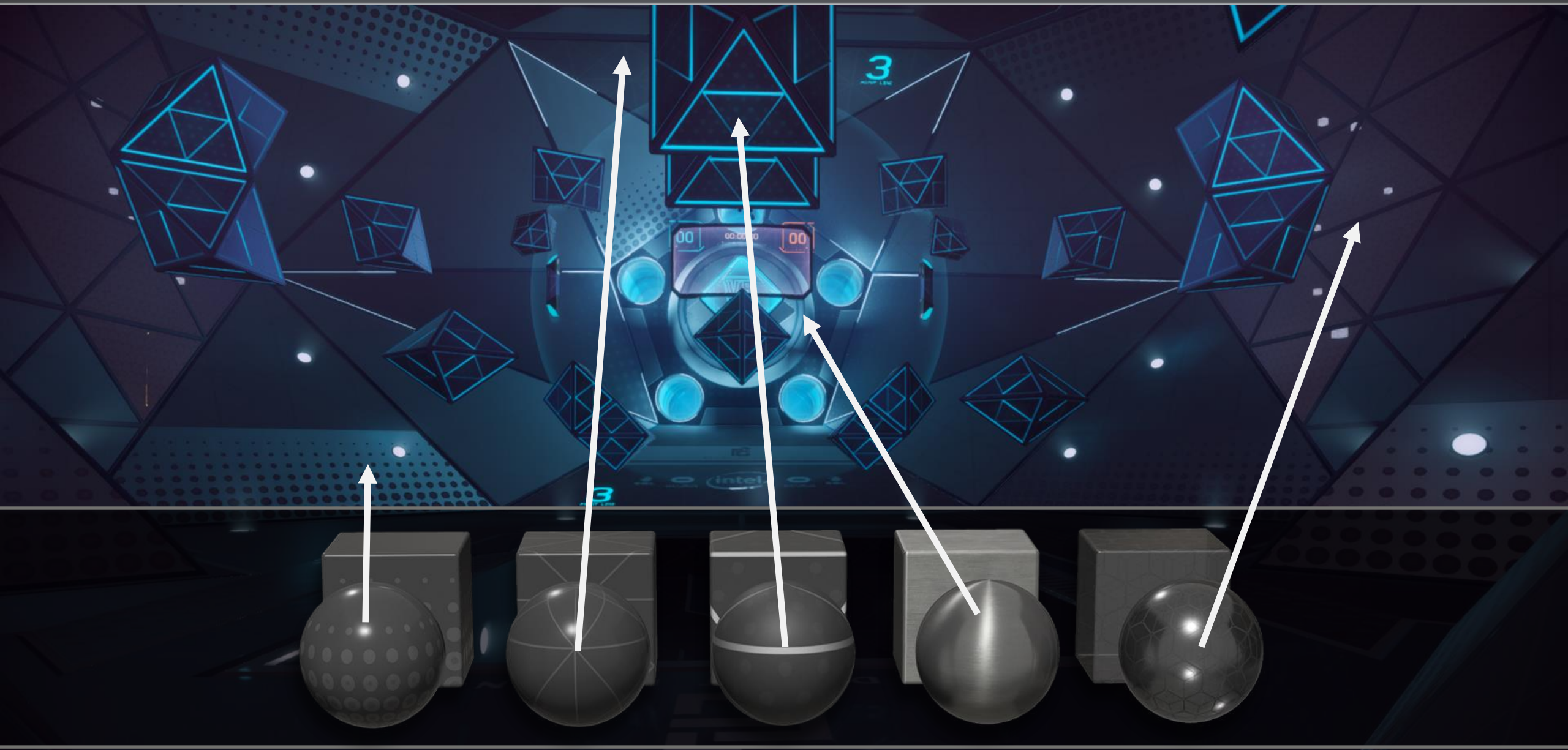

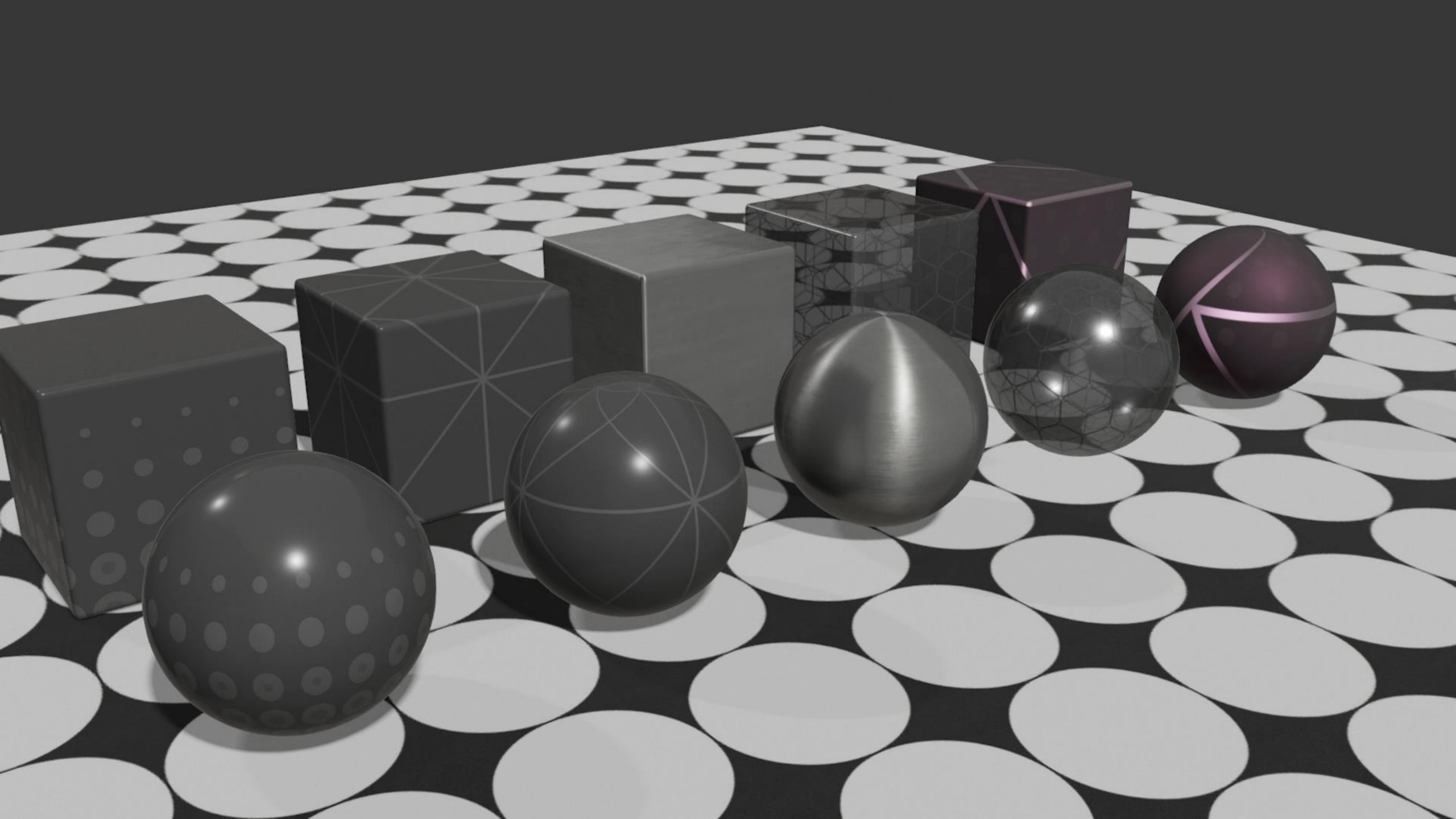

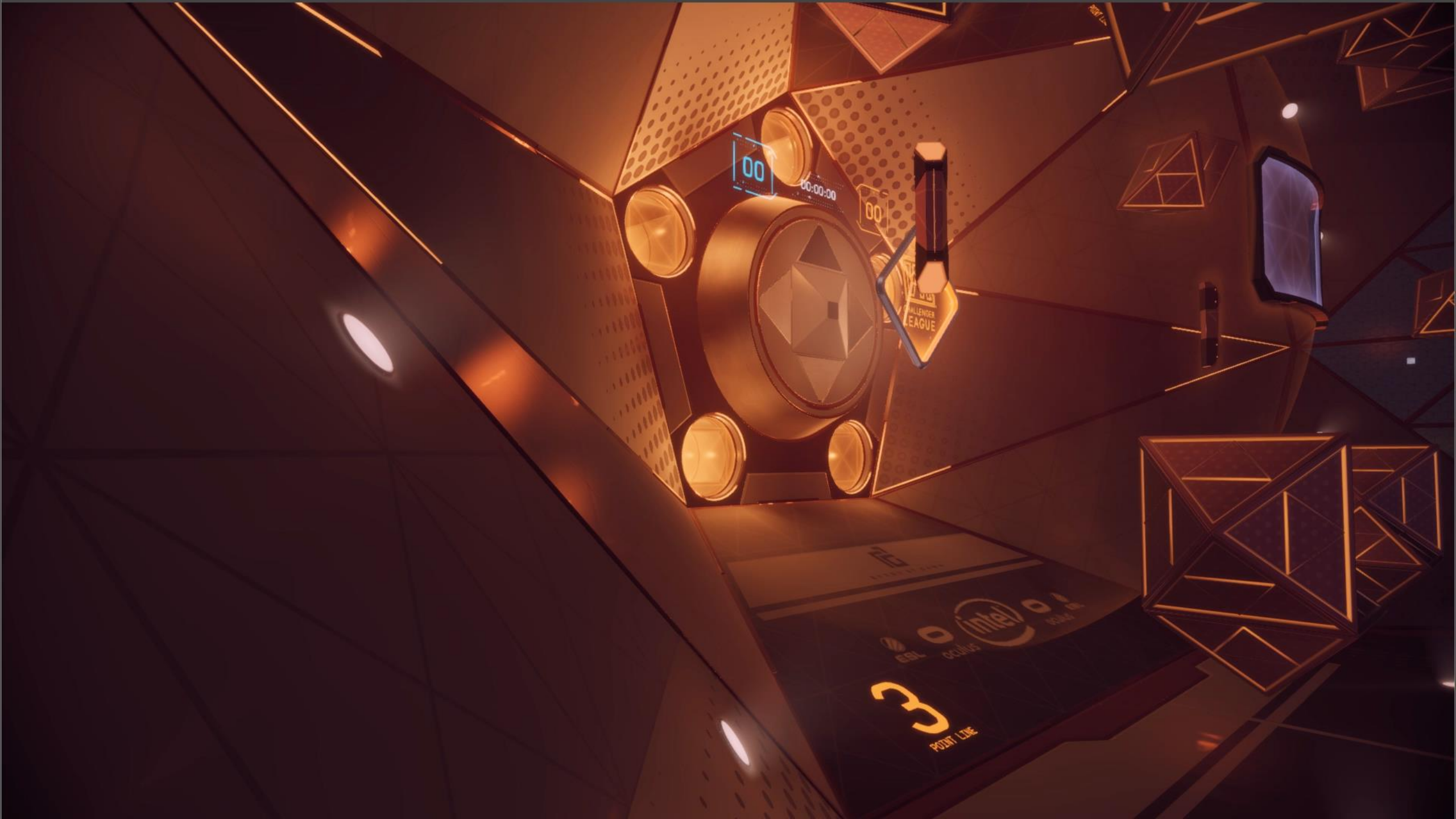
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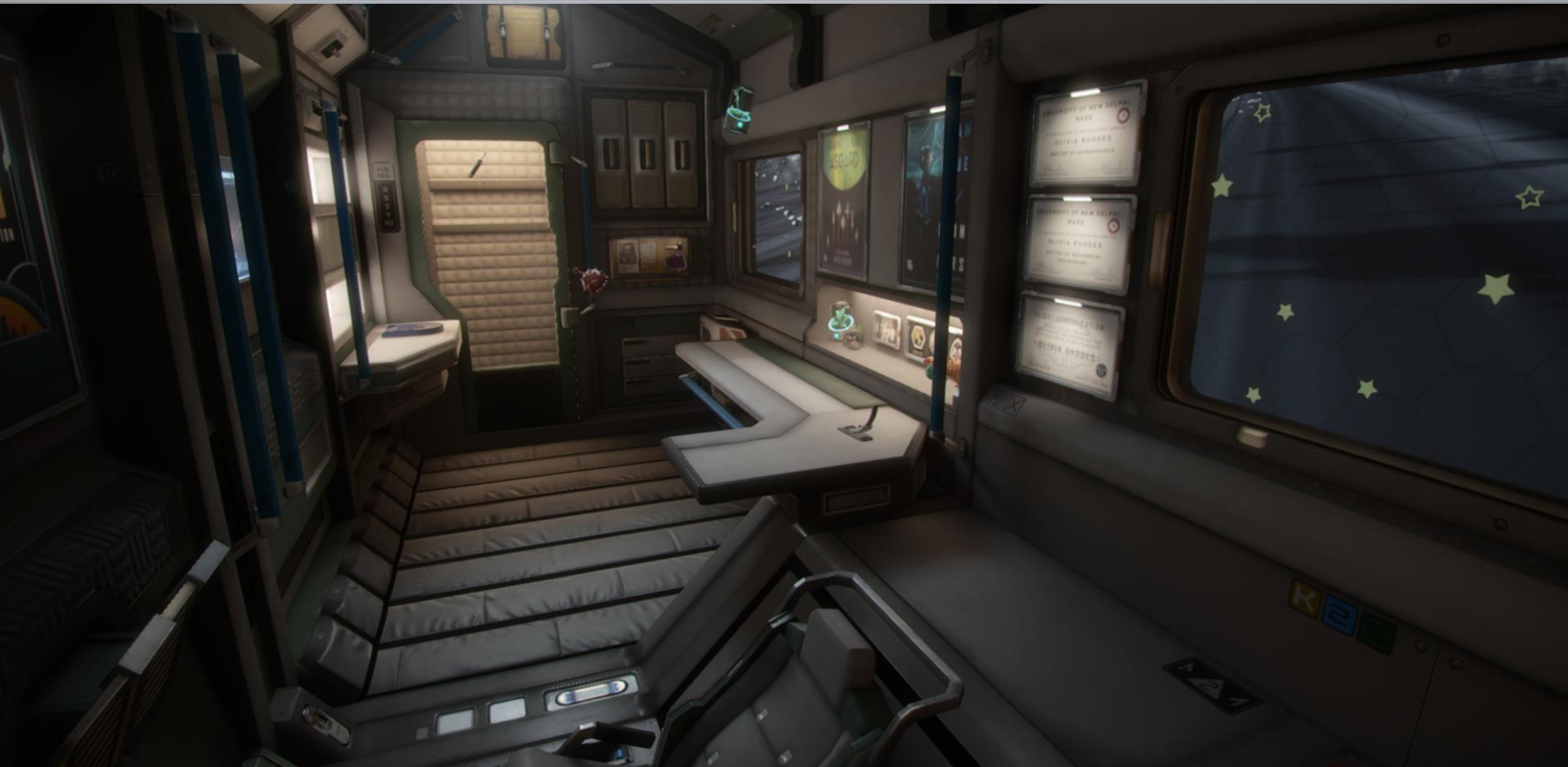
Comfort and Environmental Design



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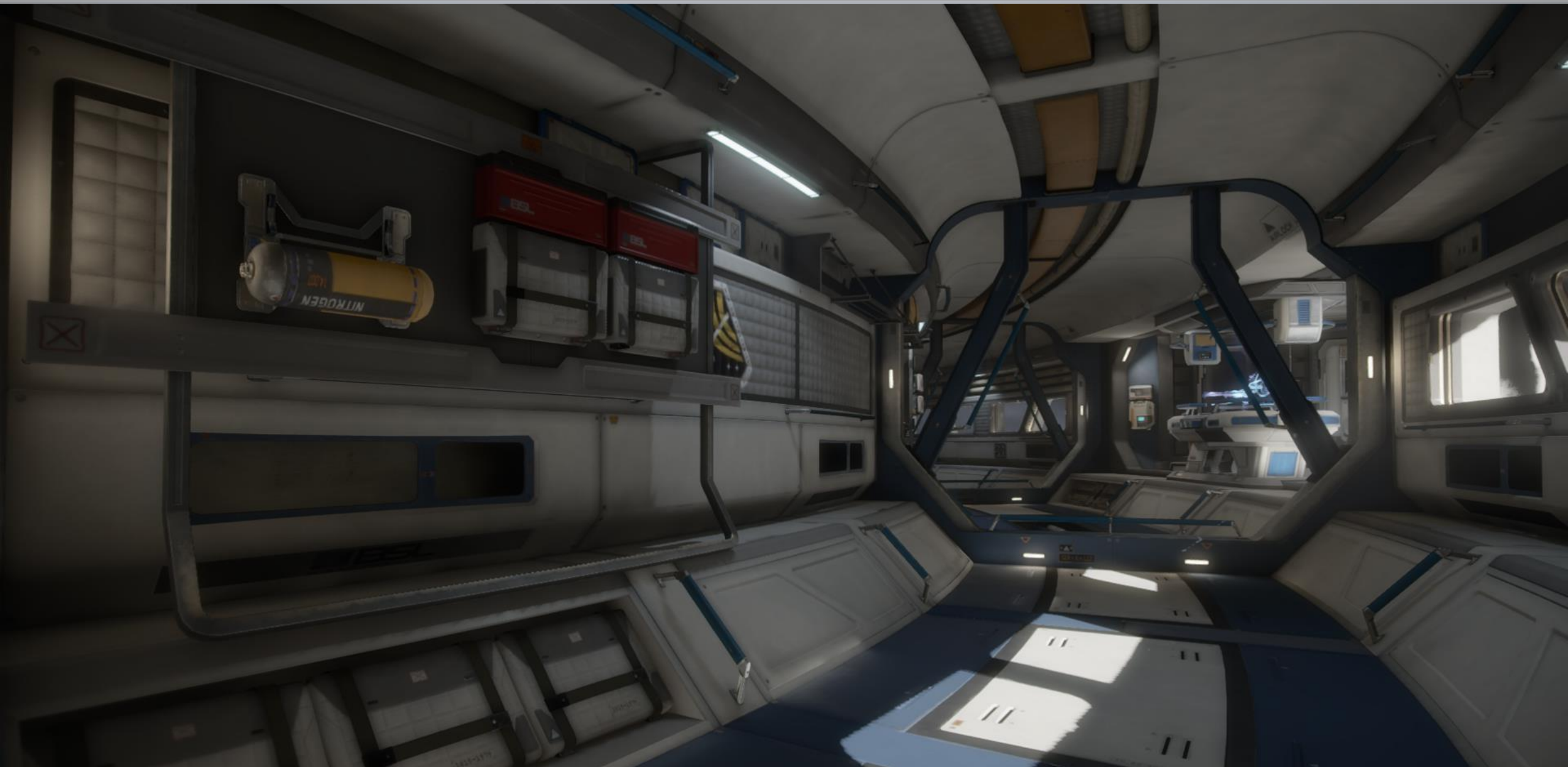

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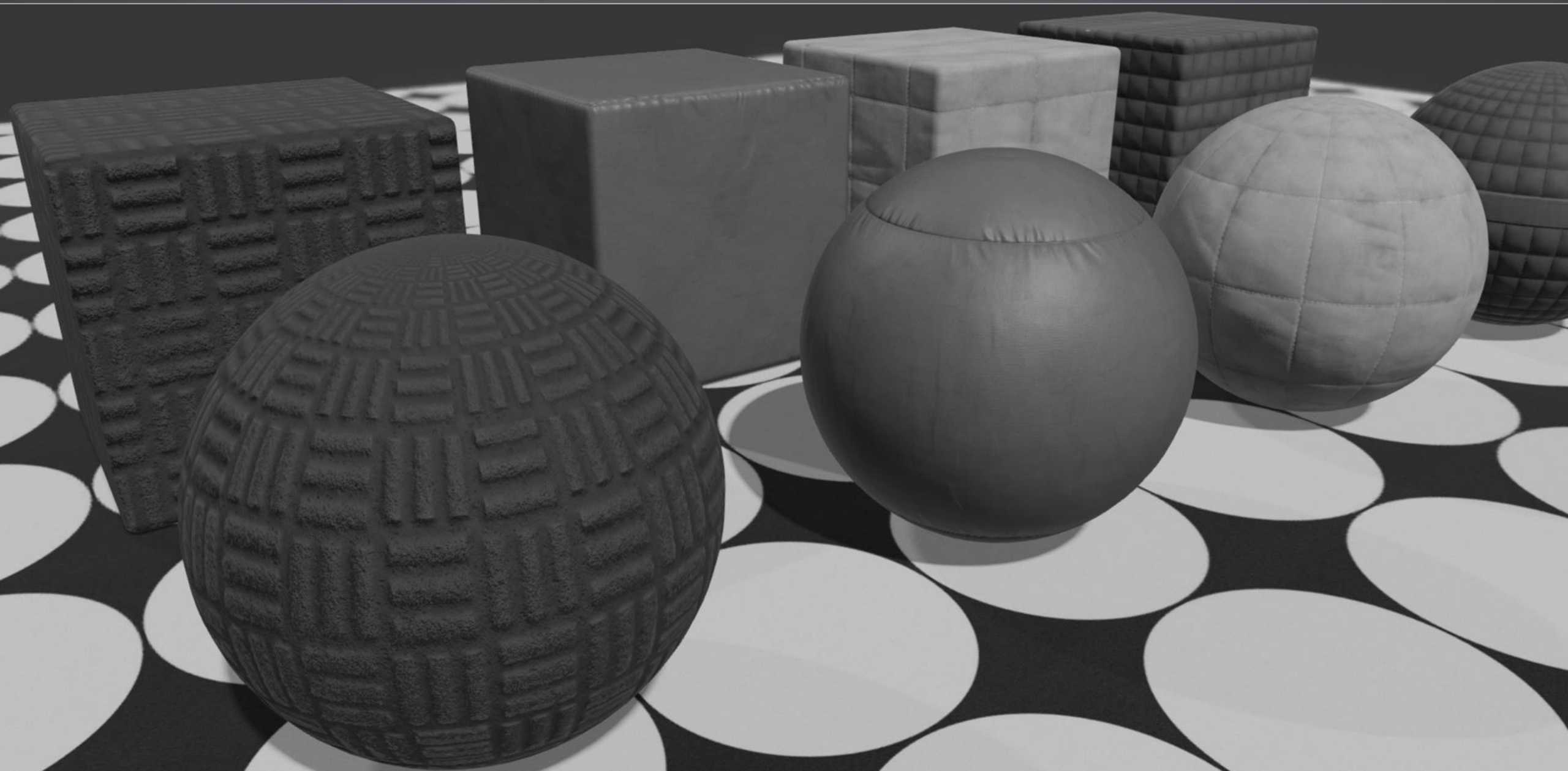

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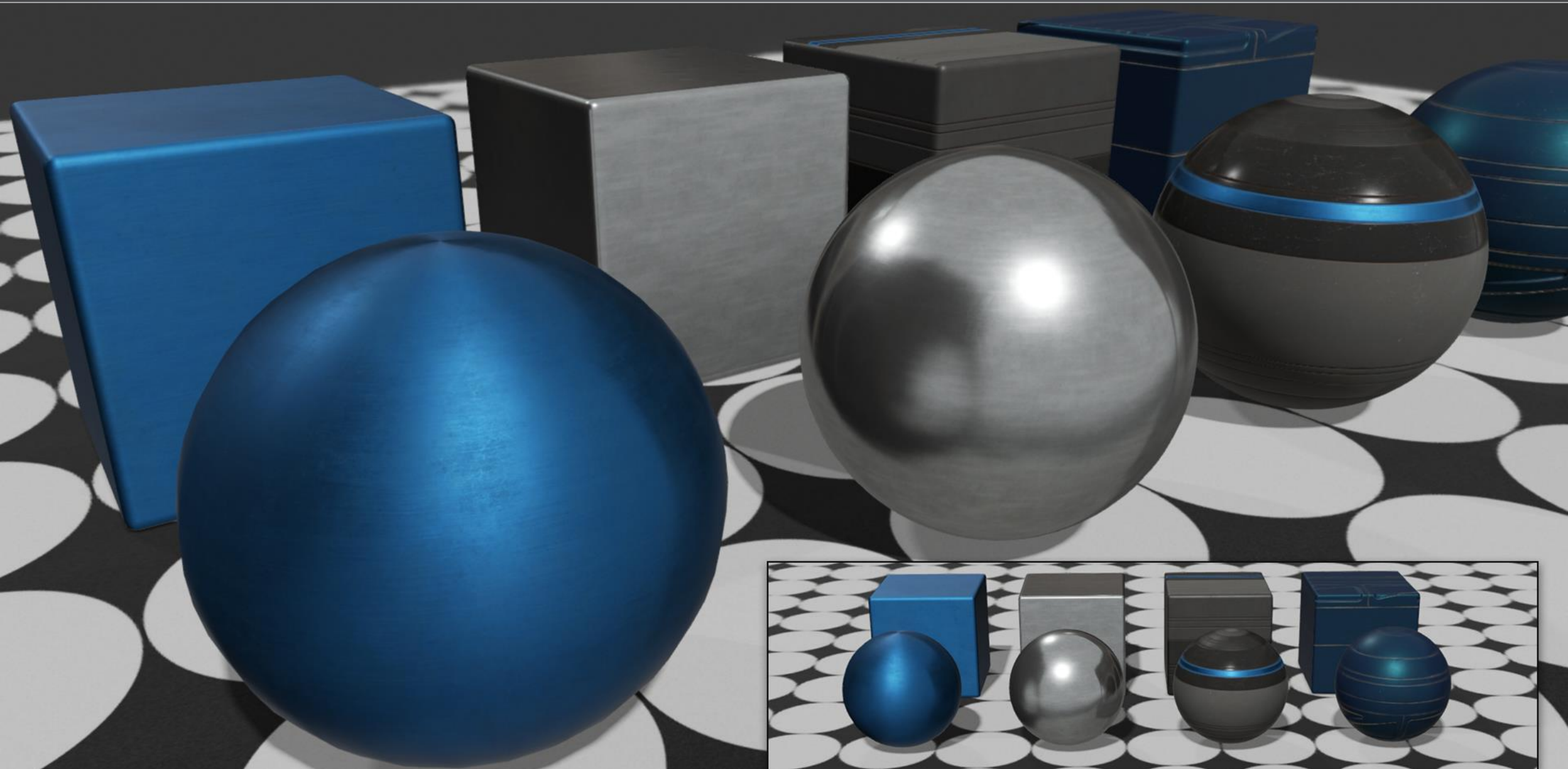

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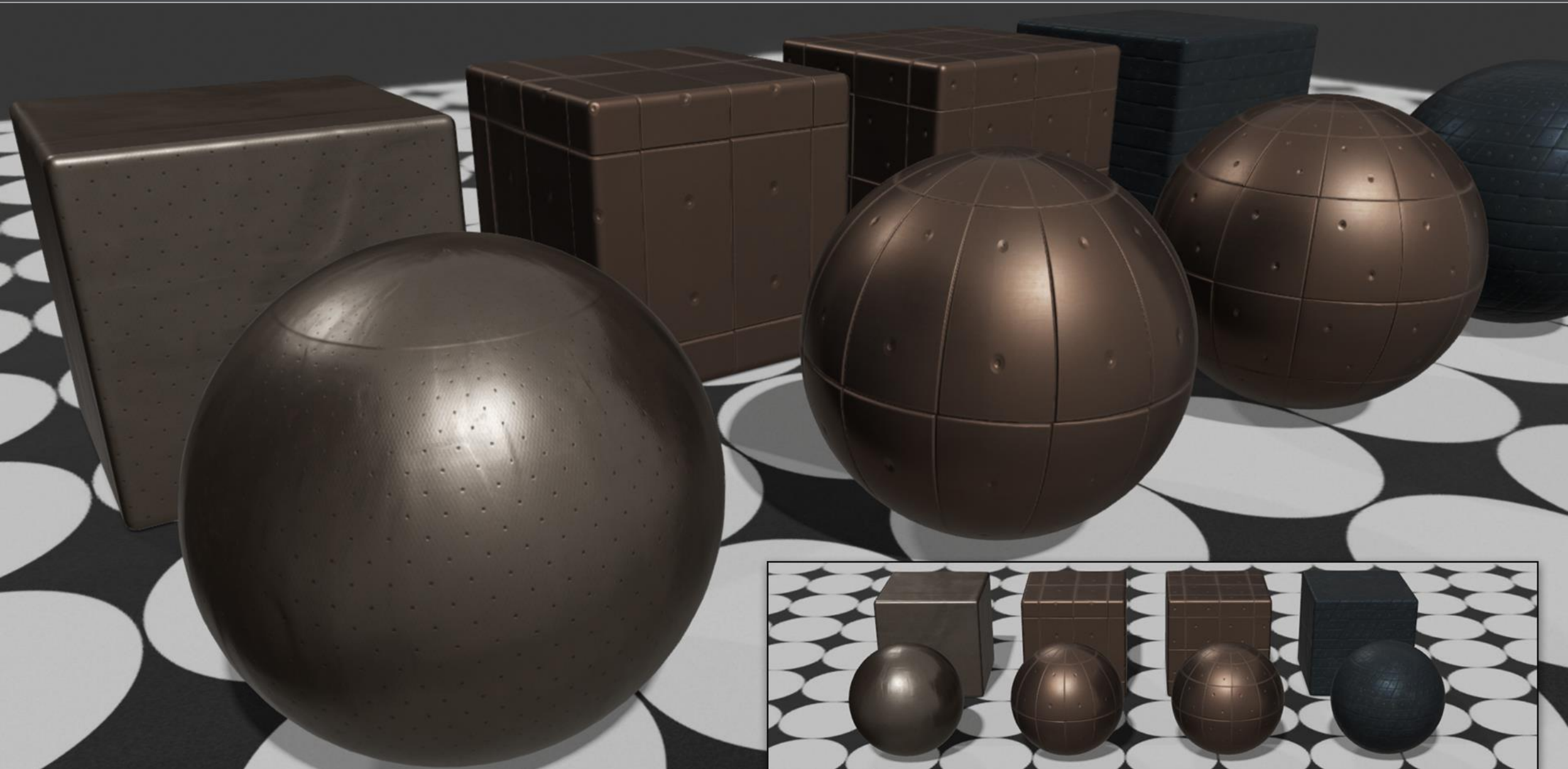

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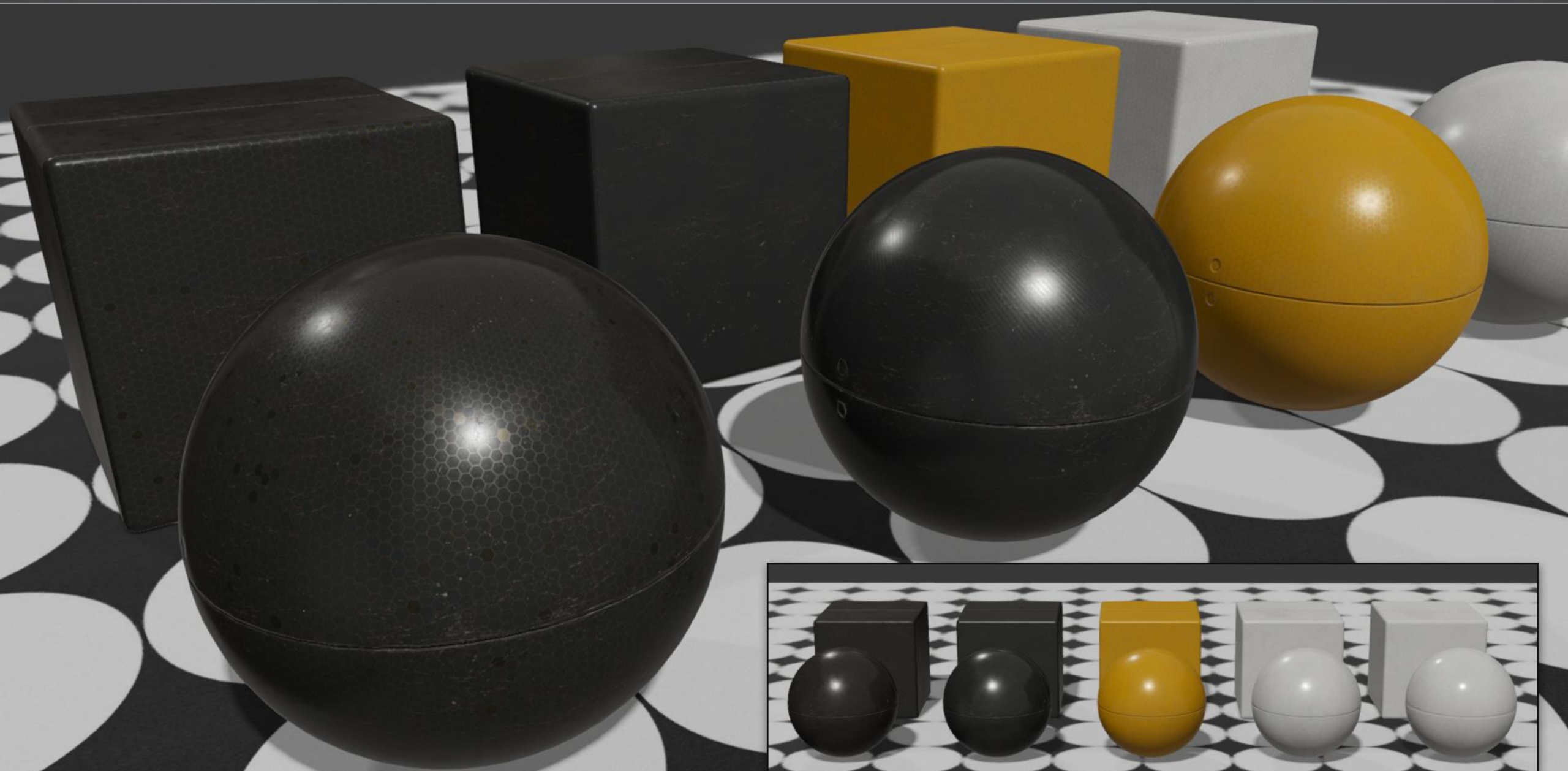
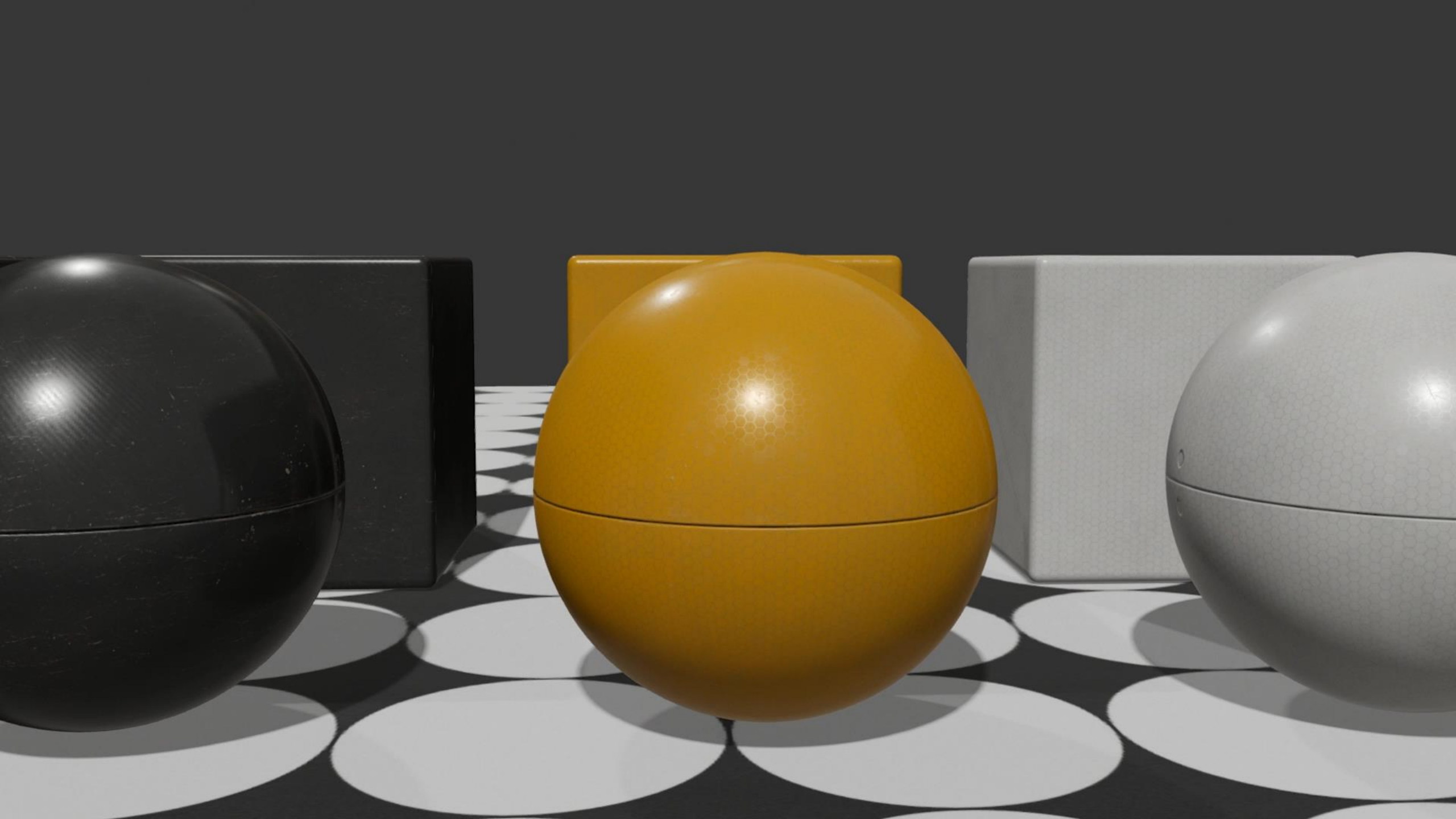
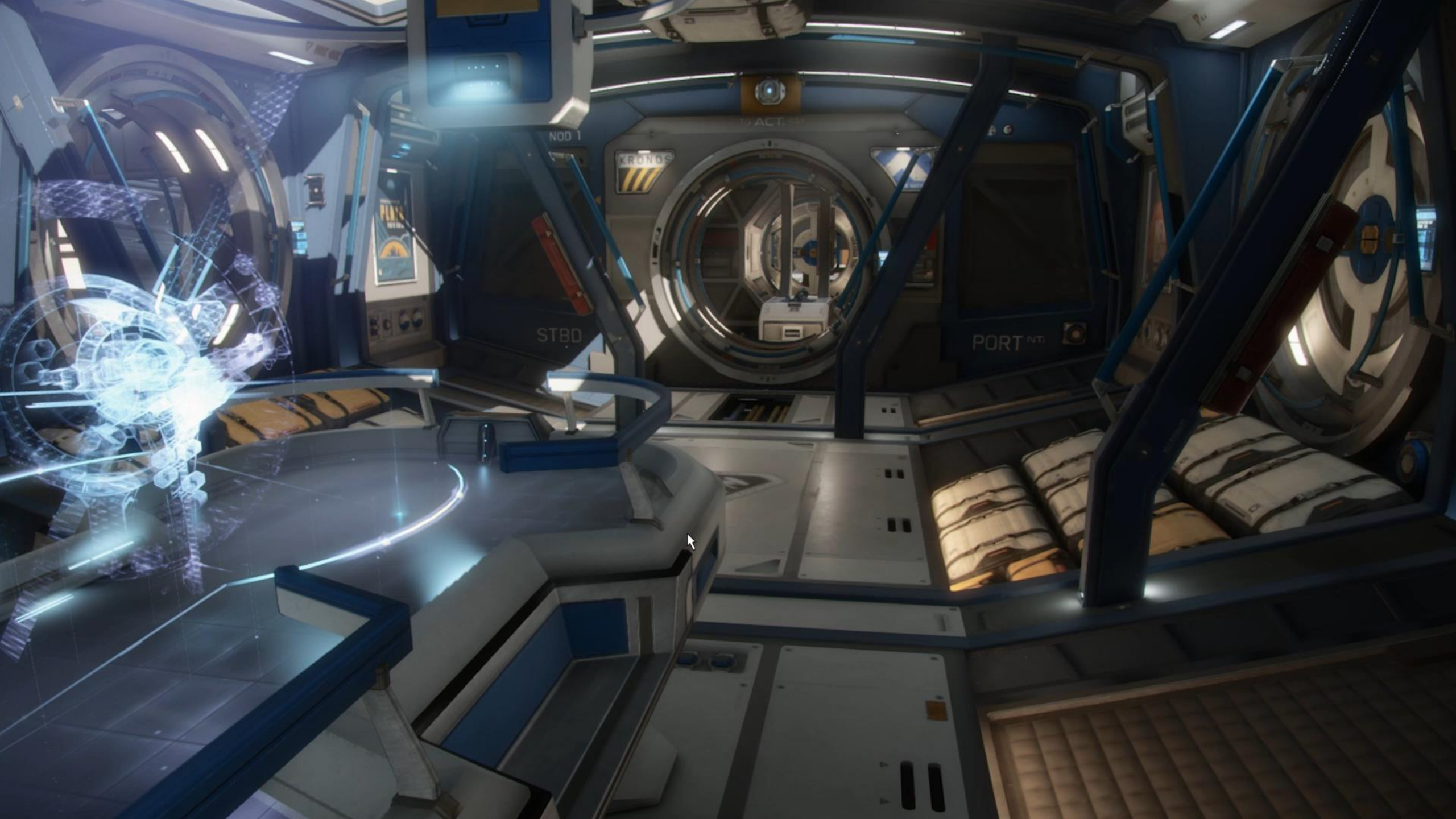





NOD 1
KRONOS
STBD
PORT

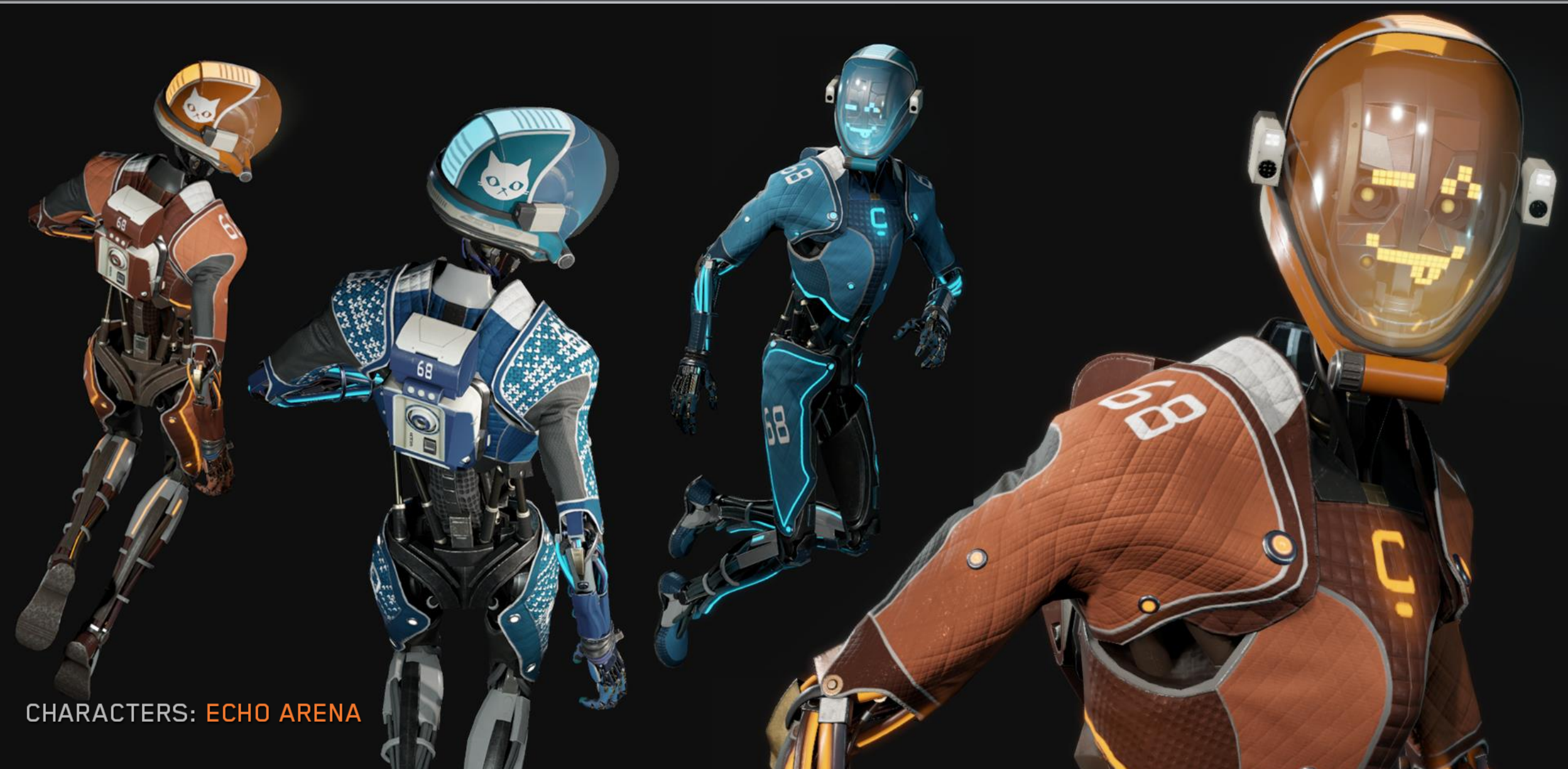
Part III:
LONE ECHO AND THE MAGIC OF VR

AVATAR DESIGN FOR PRESENCE

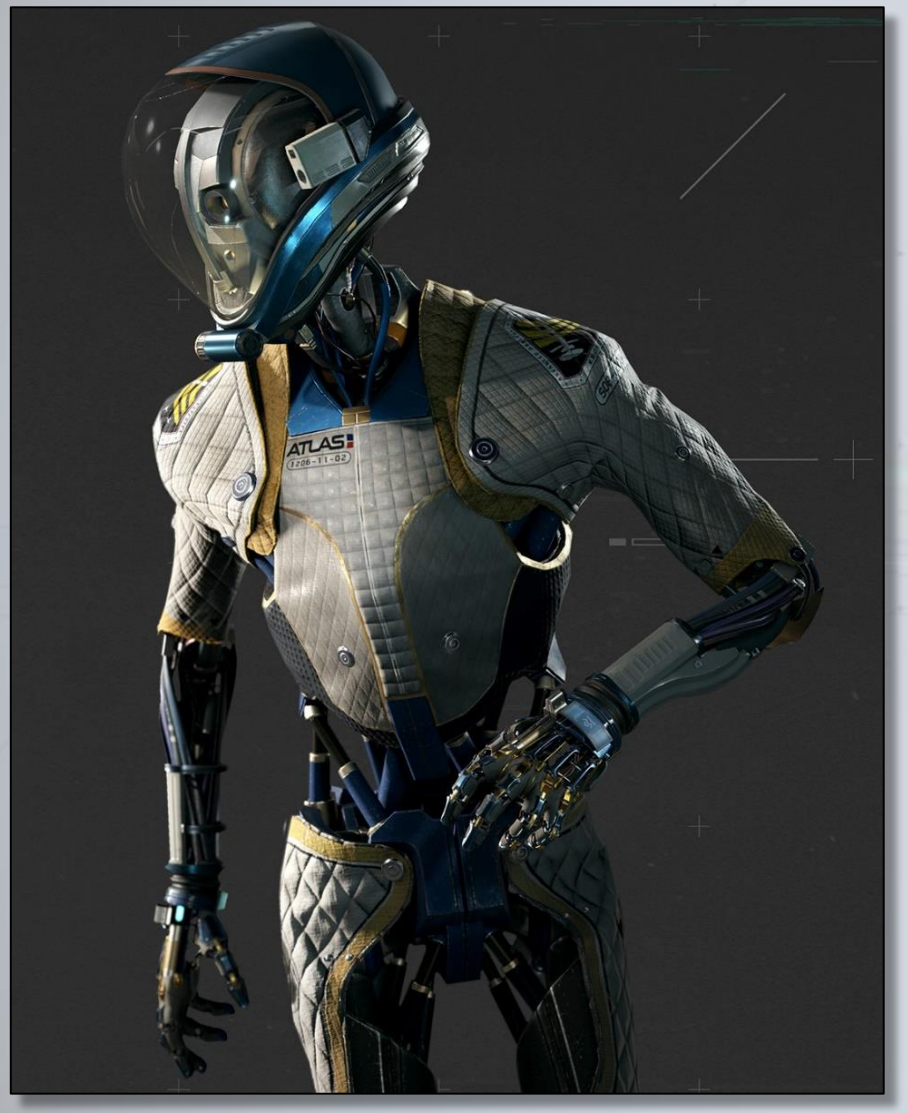
Player Avatar Sample

ENVIRONMENTS: LONE ECHO

Player Avatar Sample



All in the Arms (and Body)



Current gen hand tracking limitations (Touch)

- Tracks 6DoF for hands and head

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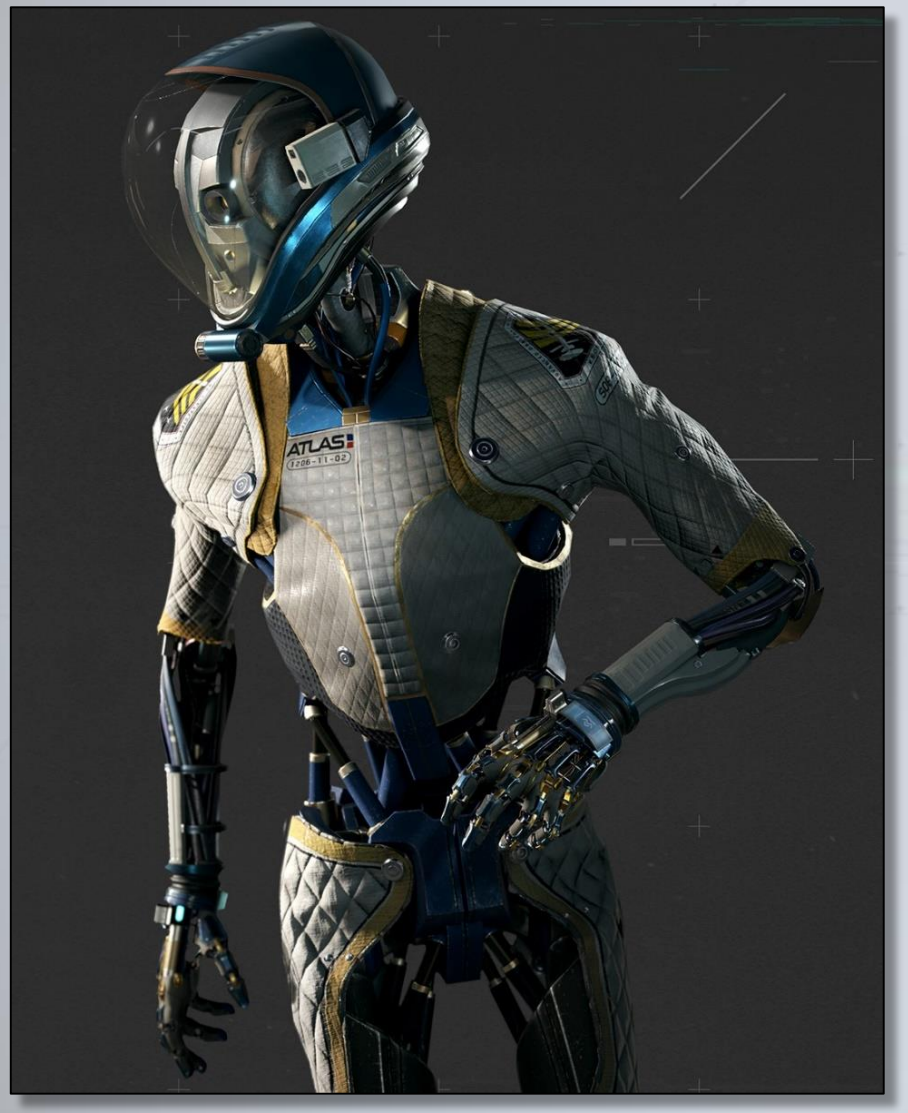

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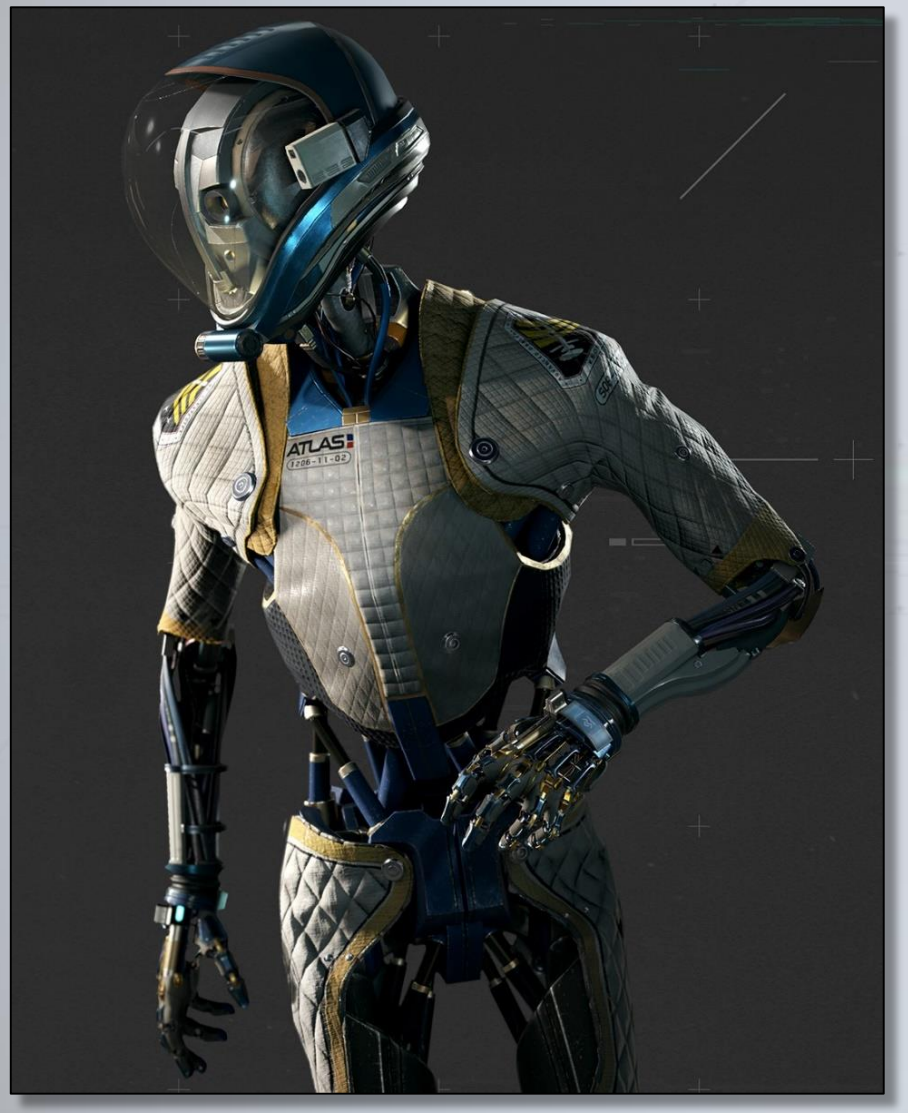

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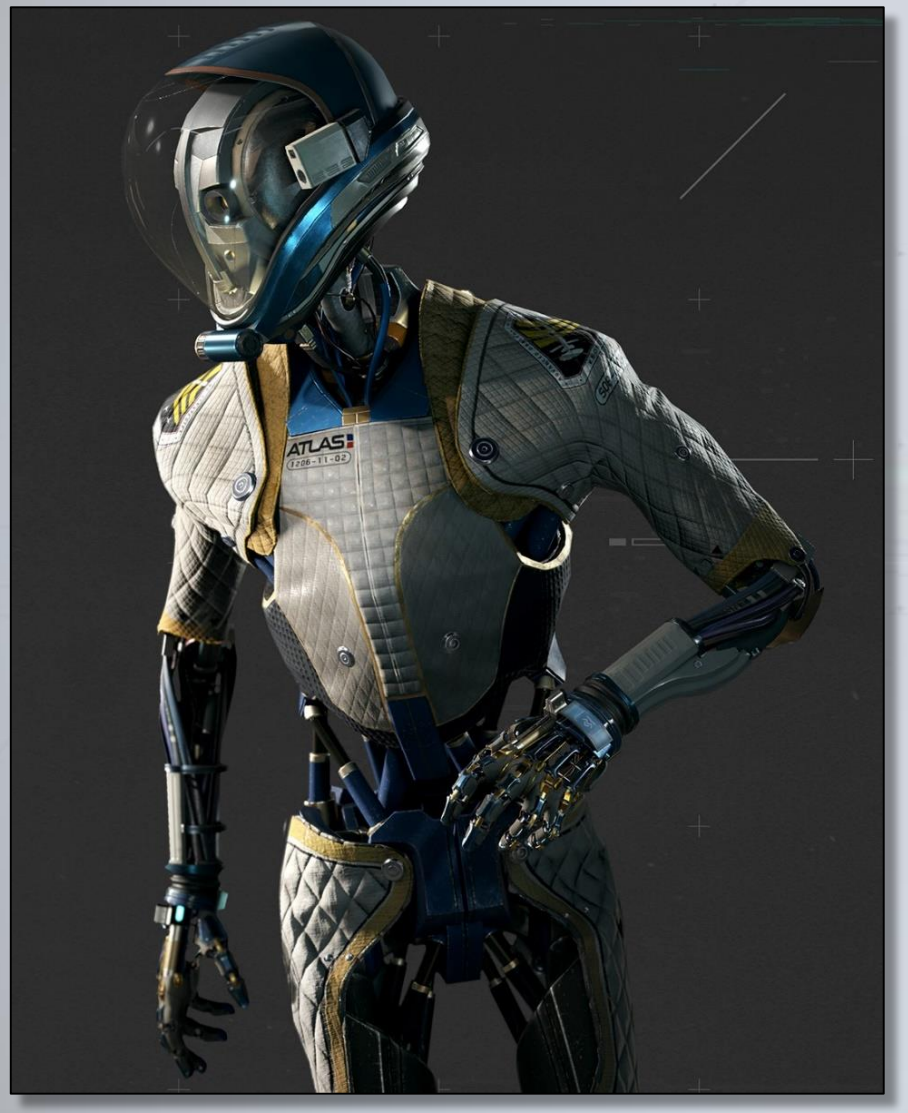
Psychological Challenges

- Generally very unsettling if stuff isn’t where it should be
  - Elbows at the wrong angle

All in the Arms (and Body)



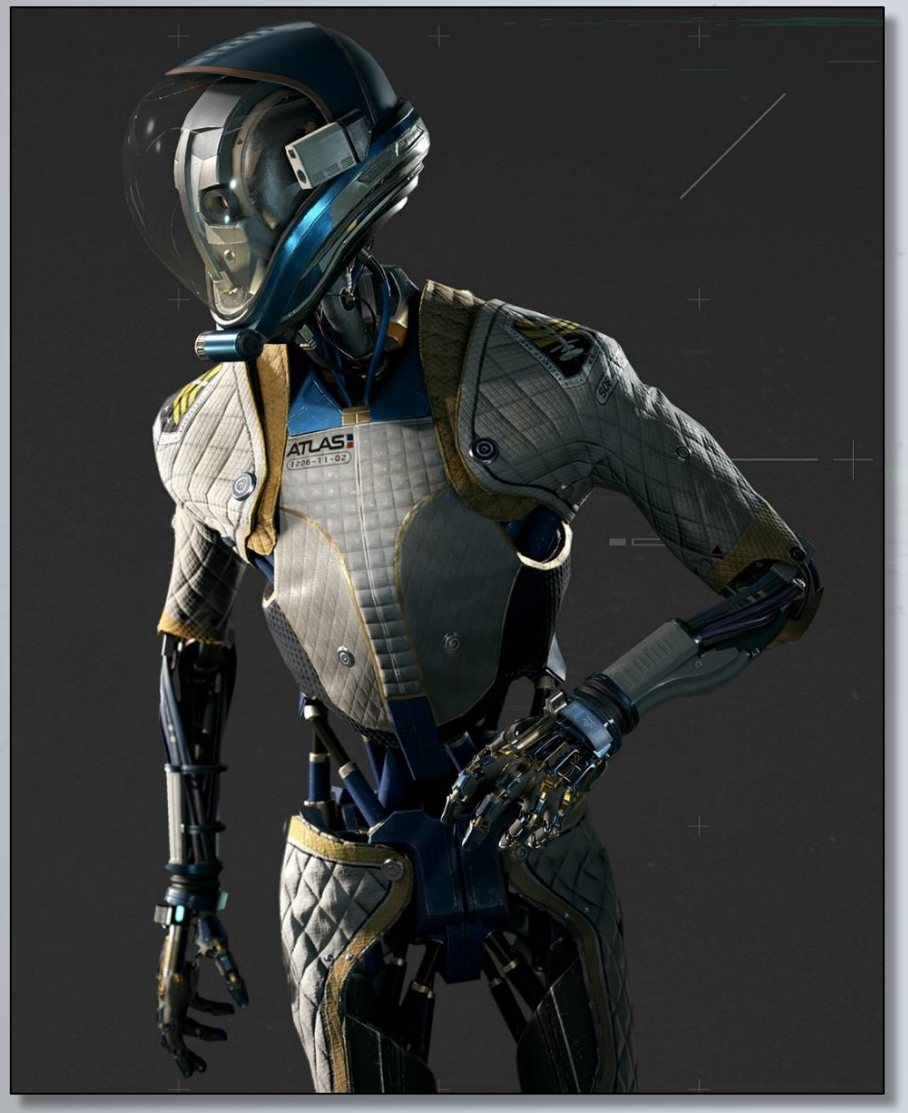
Current gen hand tracking limitations (Touch)

- Tracks 6DoF for hands and head
- Limited finger tracking (index, thumb, rest as ‘mitt’)
- No elbow, shoulder, or body tracking

Psychological Challenges

- Generally very unsettling if stuff isn’t where it should be
  - Elbows at the wrong angle
  - Arm locked out too early

All in the Arms (and Body)



Current gen hand tracking limitations (Touch)

- Tracks 6DoF for hands and head
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- No elbow, shoulder, or body tracking

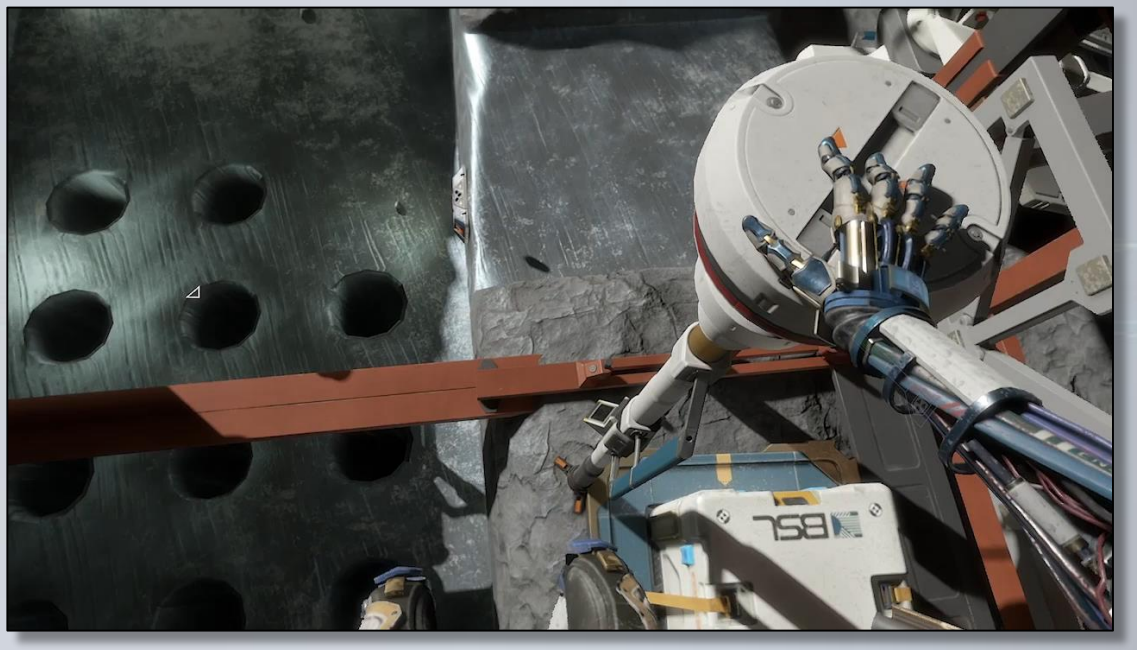
Psychological Challenges

- Generally very unsettling if stuff isn’t where it should be
  - Elbows at the wrong angle
  - Arm locked out too early
- VR immersion makes a virtual body much more personal
  - Mismatching body identity can feel strange
  - Can distract from presence

Robot Roleplaying

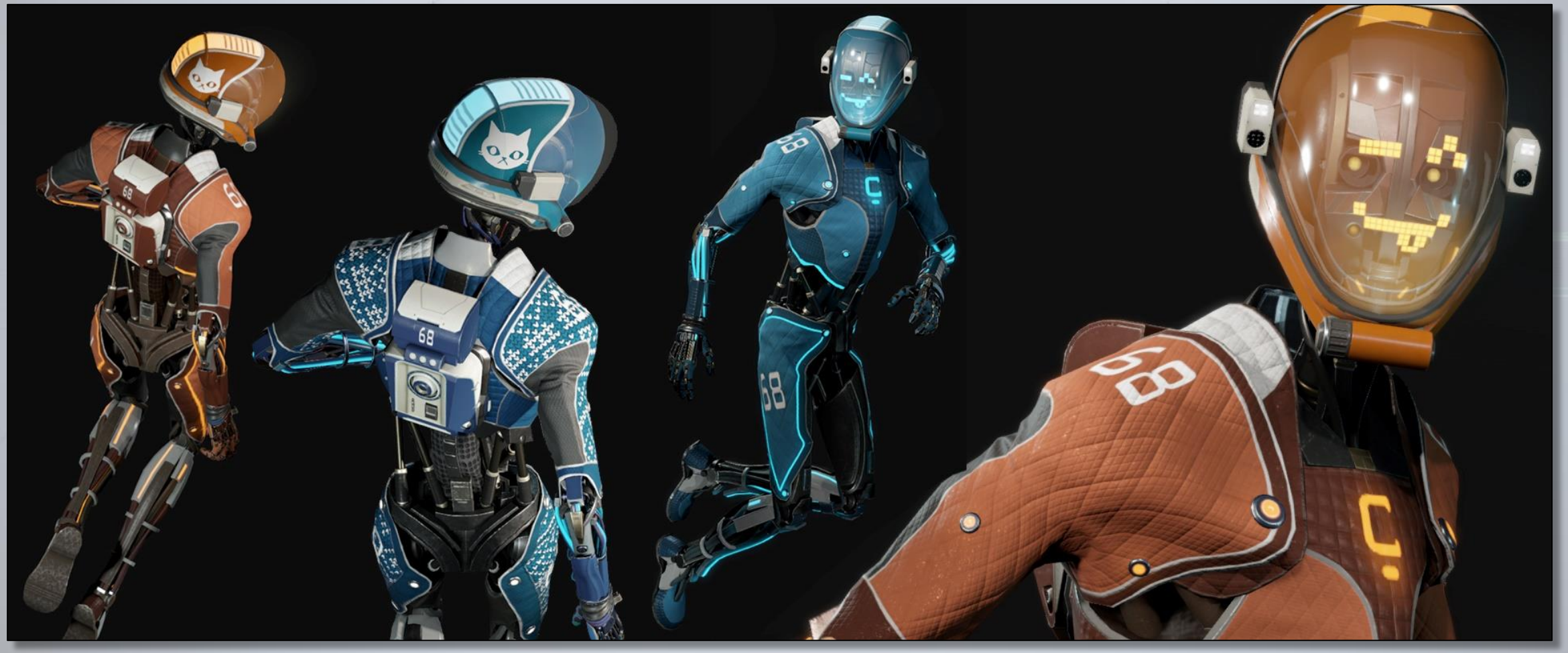
See GDC 2017 Session: Lone Echo: It's All in the Hands

www.readyatdawn.com/presentations/



Robot Roleplaying

Designing an avatar body for everyone

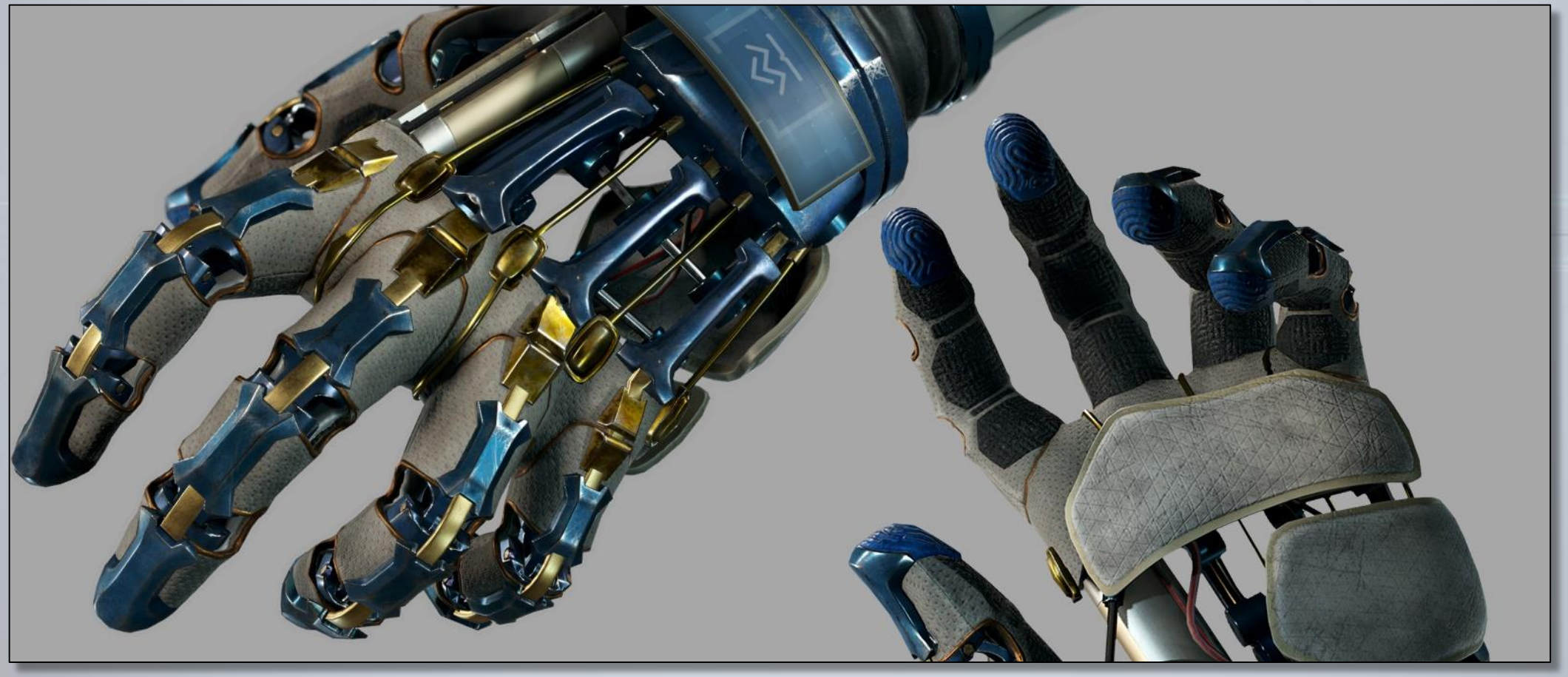


Robot Roleplaying

Robot Roleplaying

Use of Negative Space

- I'm a robot!



Robot Roleplaying

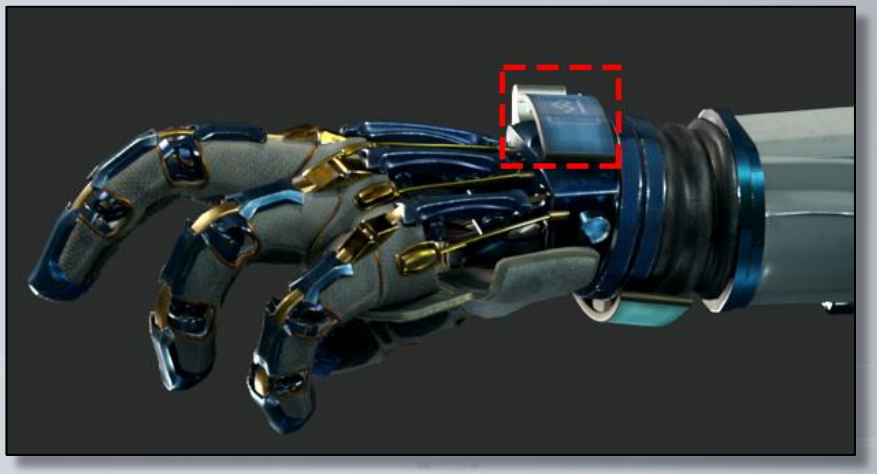
Tactile Interactions

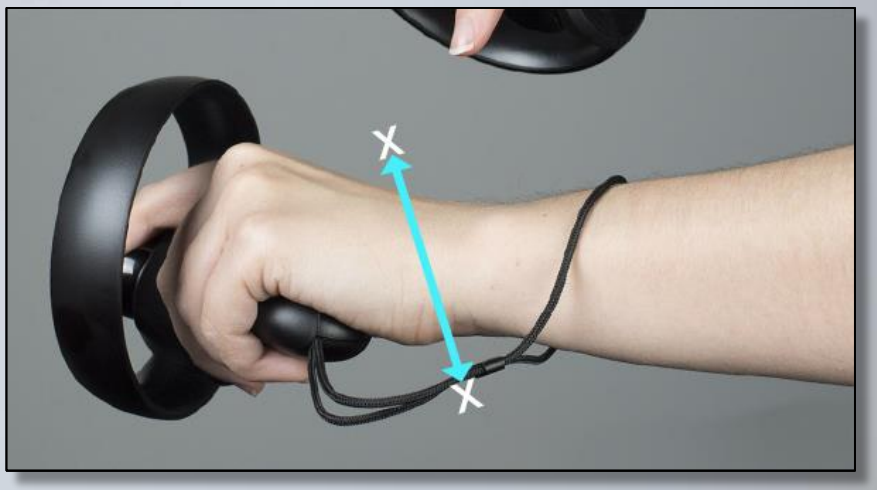
- In-world interactions prioritized over button abstraction

Robot Roleplaying

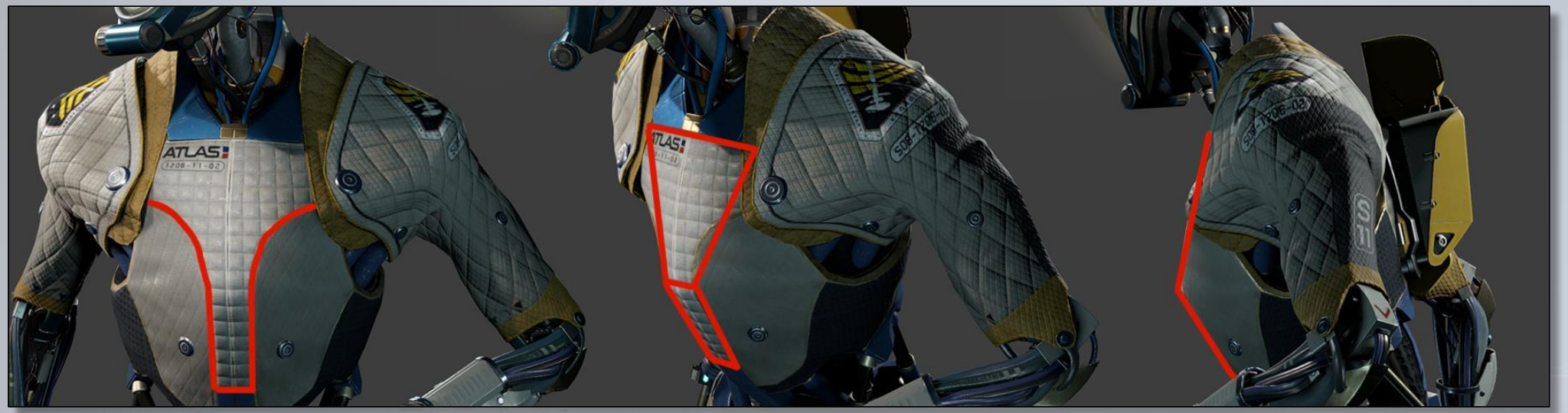
Tactile Interactions

- One-to-one virtual parity with players own body
- Points of interaction need to be predictably ‘rigid’!





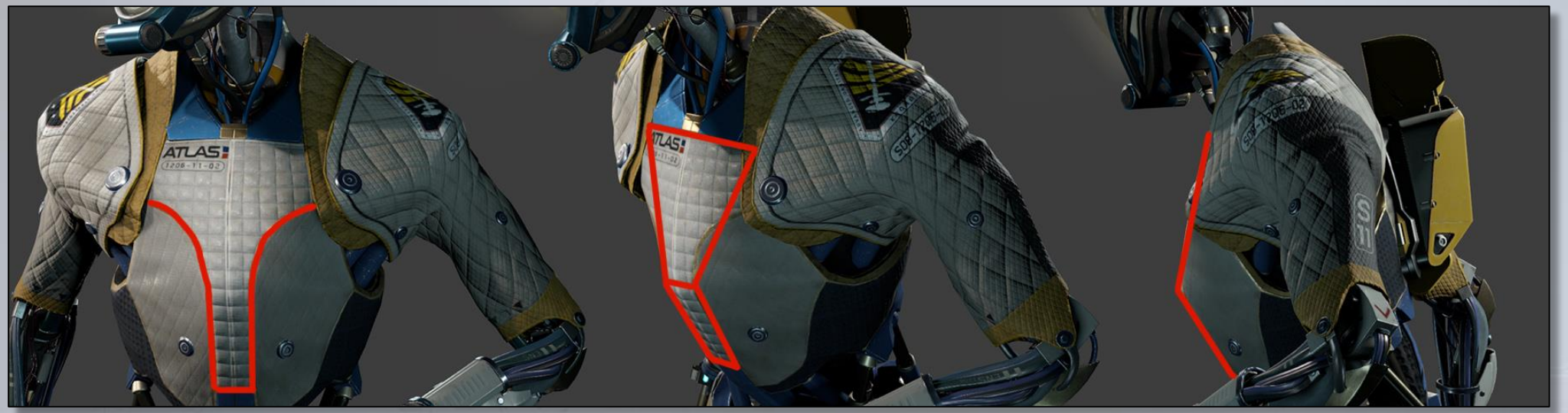
Robot Roleplaying



Avatar design for all

- Attempted to manipulate form cues in character design to allow a wider range of body shape identity

Robot Roleplaying



Avatar design for all

- Attempted to manipulate form cues in character design to allow a wider range of body shape identity
- Negative space allows brain to fill in the gaps

Robot Roleplaying

Use of Negative Space

- I'm a robot!
- Identity projection

Robot Roleplaying

Use of Negative Space

- I'm a robot!
- Identity projection
  - Glass half empty

Robot Roleplaying

Use of Negative Space

- I'm a robot!
- Identity projection
  - Glass half empty
  - Glass half full

Robot Roleplaying

Natural arm length for everyone

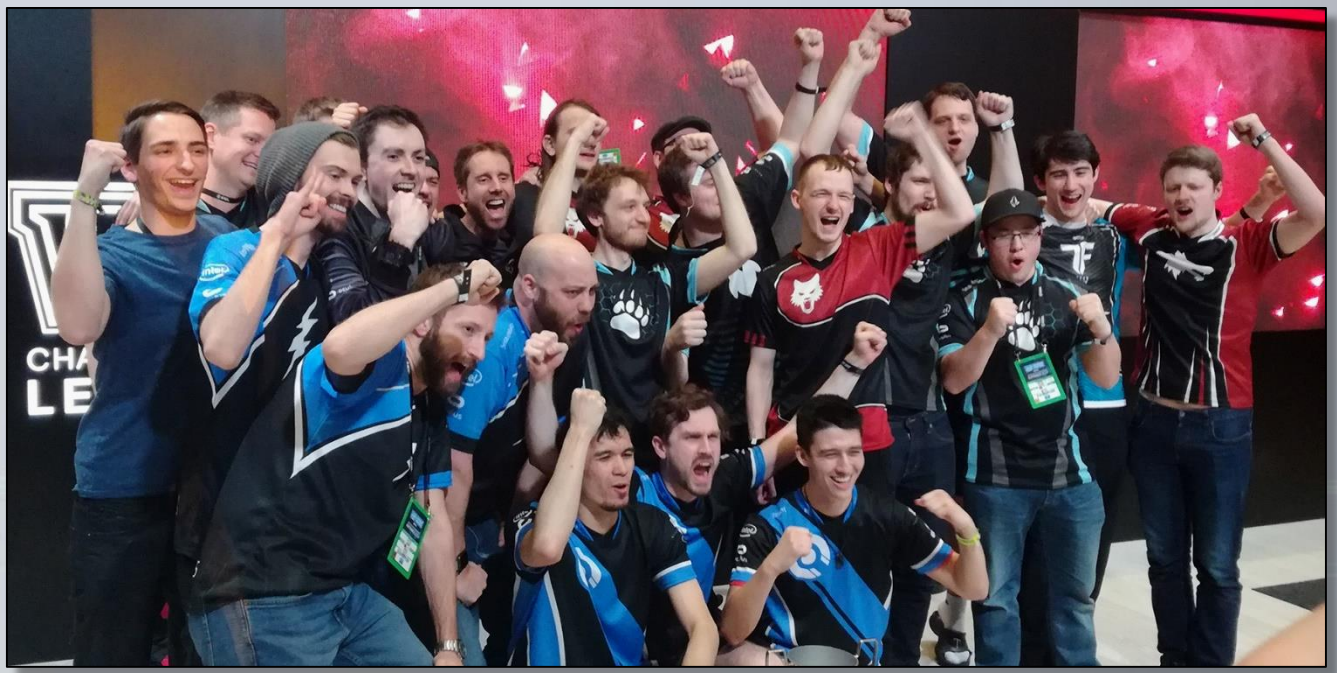
- Avatar arm automatically extends to match hand
- Soft design to telescoping elements
- Designed to adjust to any size with minimal distortion

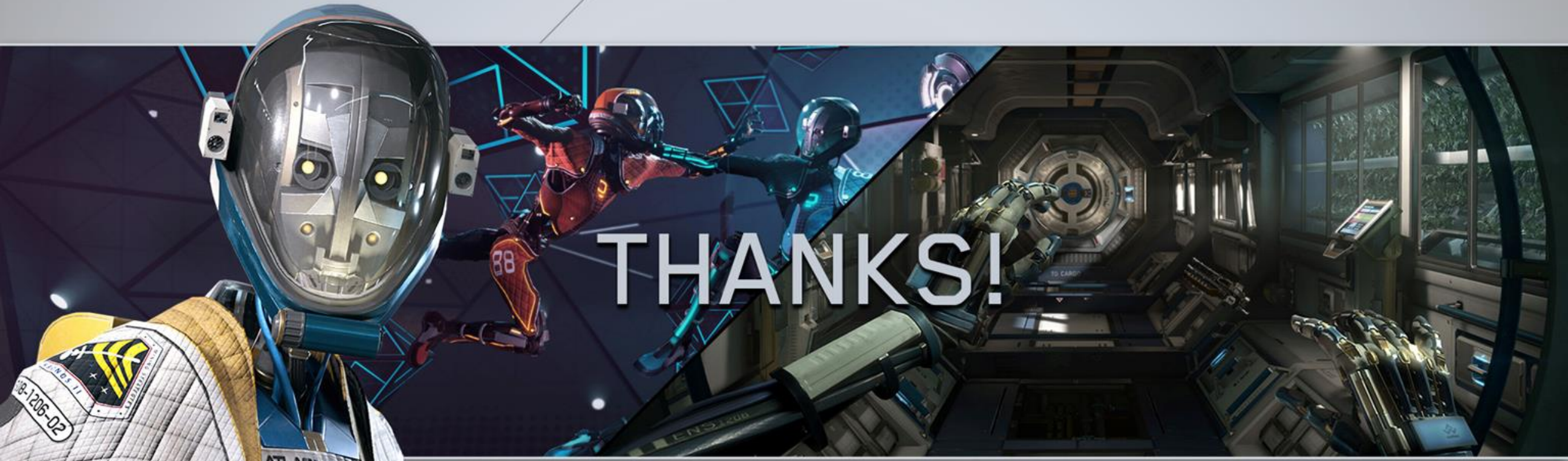
Robot Roleplaying

Natural arm length for everyone

- Avatar arm automatically extends to match hand
- Character design and rig allow for telescoping elements
- Designed to adjust to any size with minimal distortion

Robot Roleplaying





THANKS!

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