CHI 2017

Student Game Competition

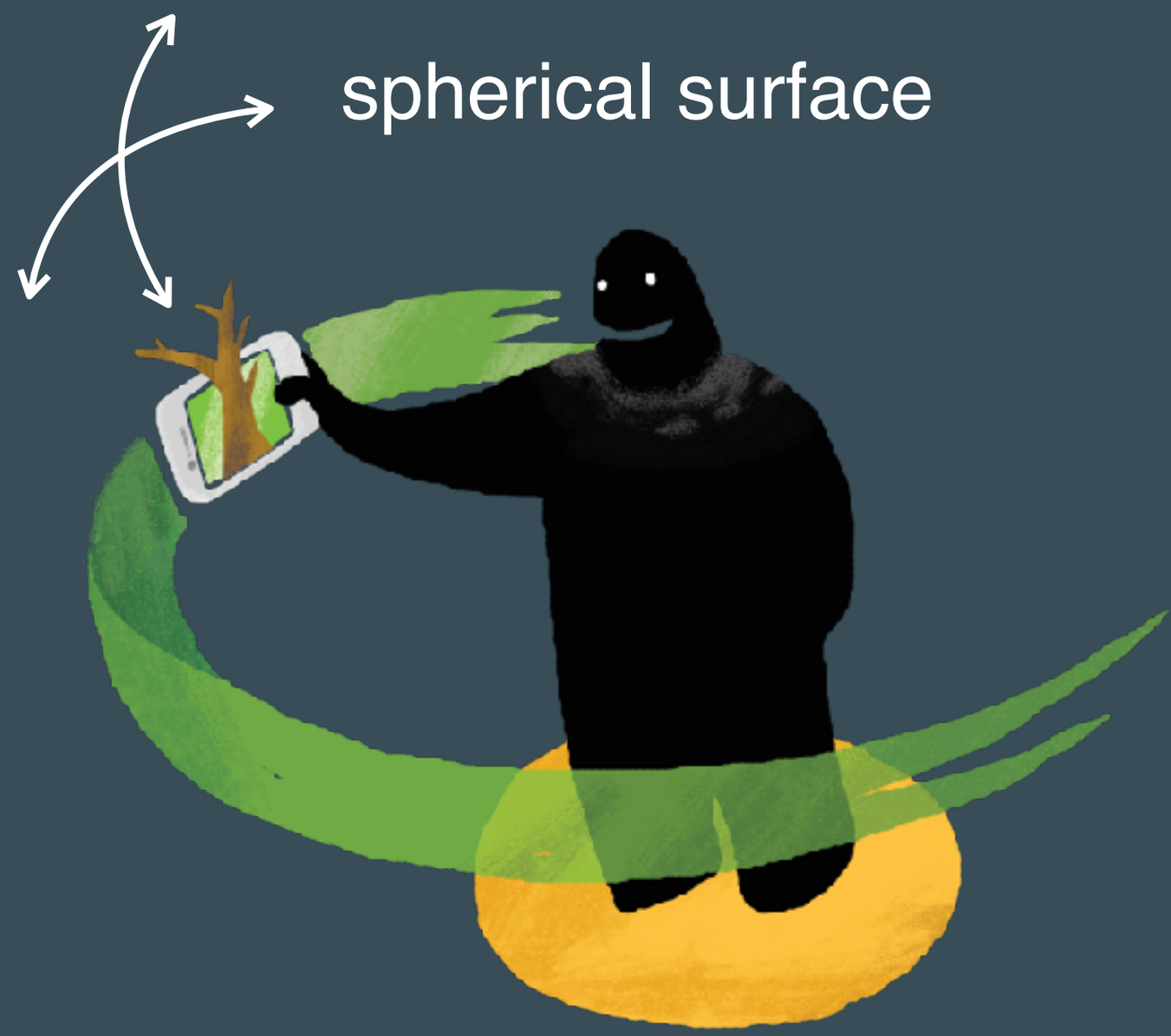
Innovative Interface

WAYOUT

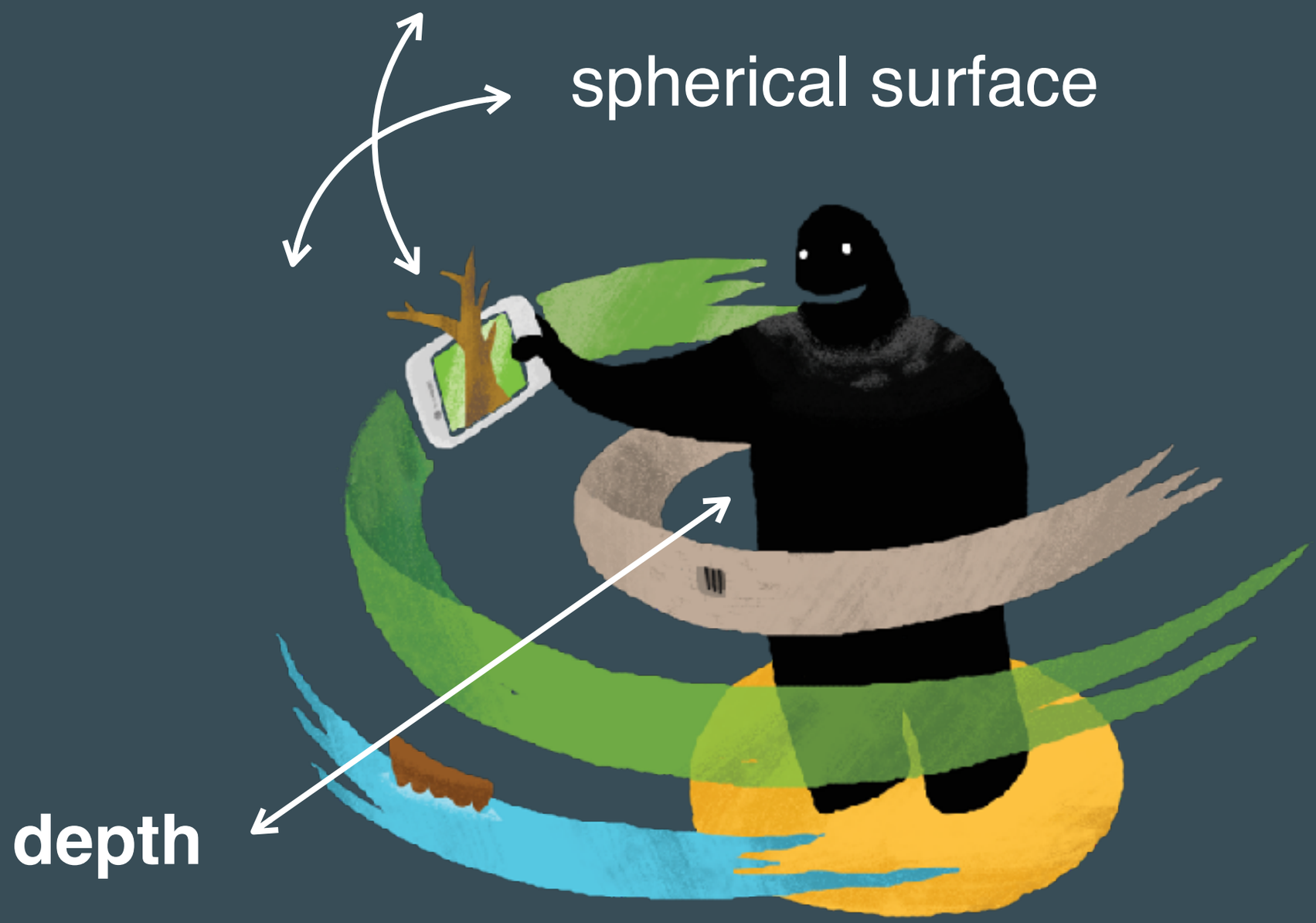
A MULTI-LAYER PANORAMA MOBILE GAME USING AROUND-BODY INTERACTIONS

Shan-Yuan Teng, **Mu-Hsuan Chen**, Yung-Ta Lin
National Taiwan University

360 degree panorama



Navigation is limited to
single-layer panorama



Depth enables **multi-layer** panorama navigation

Face tracking
with built-in front-facing camera

Way Out

multi-layer panorama interactions

Technology

* We have improved the implementation after camera-ready version.

1.

Track facial feature points with OpenCV using built-in front-facing camera

Unity on iPhone

* We have improved the implementation after camera-ready version.

2. Estimate the distance between phone and player by the distance between eyes*

1.

Track facial feature points with OpenCV using built-in front-facing camera

Unity on iPhone

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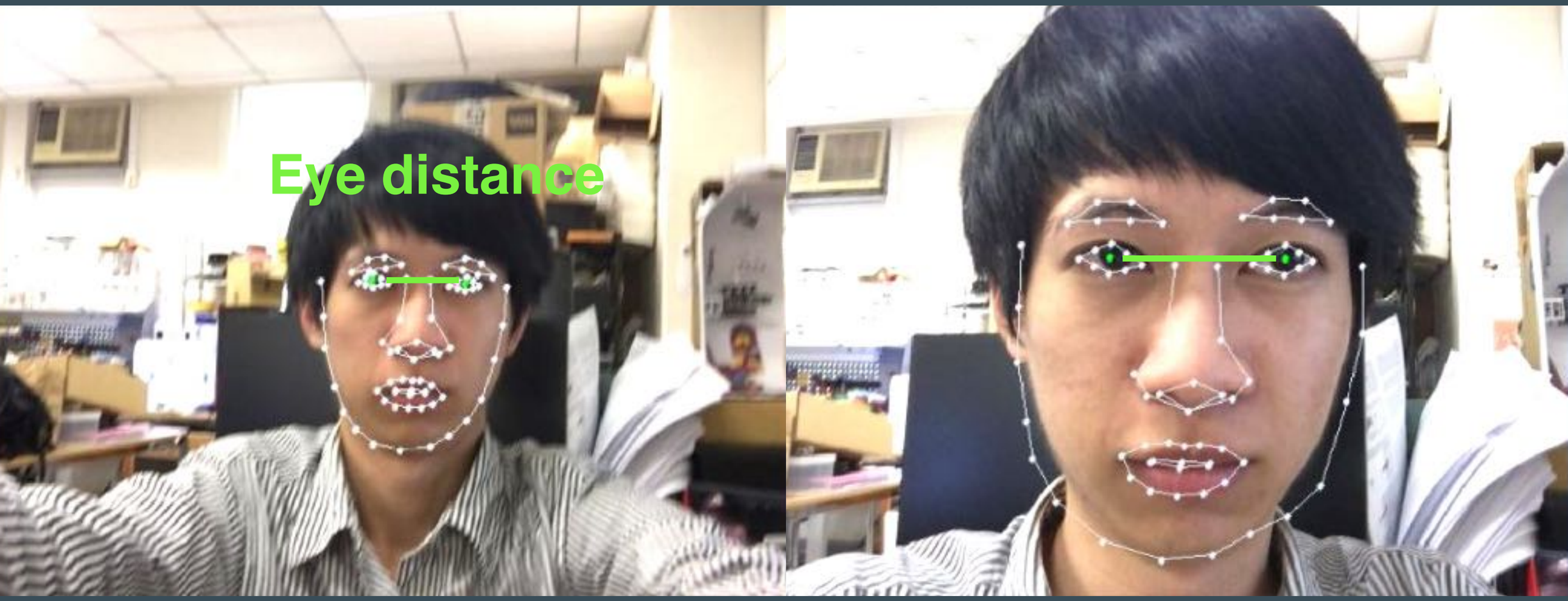
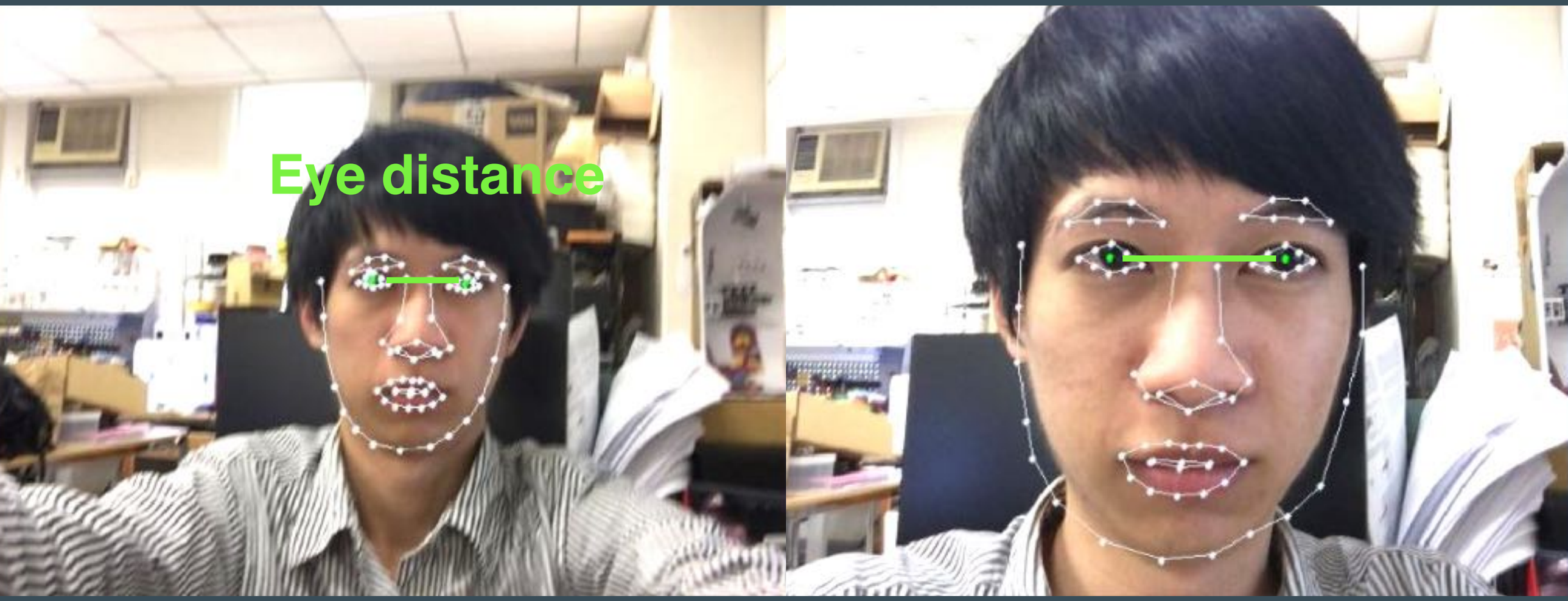
Non-rigid face tracking (OpenCV)



Non-rigid face tracking (OpenCV)



Farthest ← Nearest

Farthest ← Nearest

Farthest ← Nearest

Farthest ← Nearest

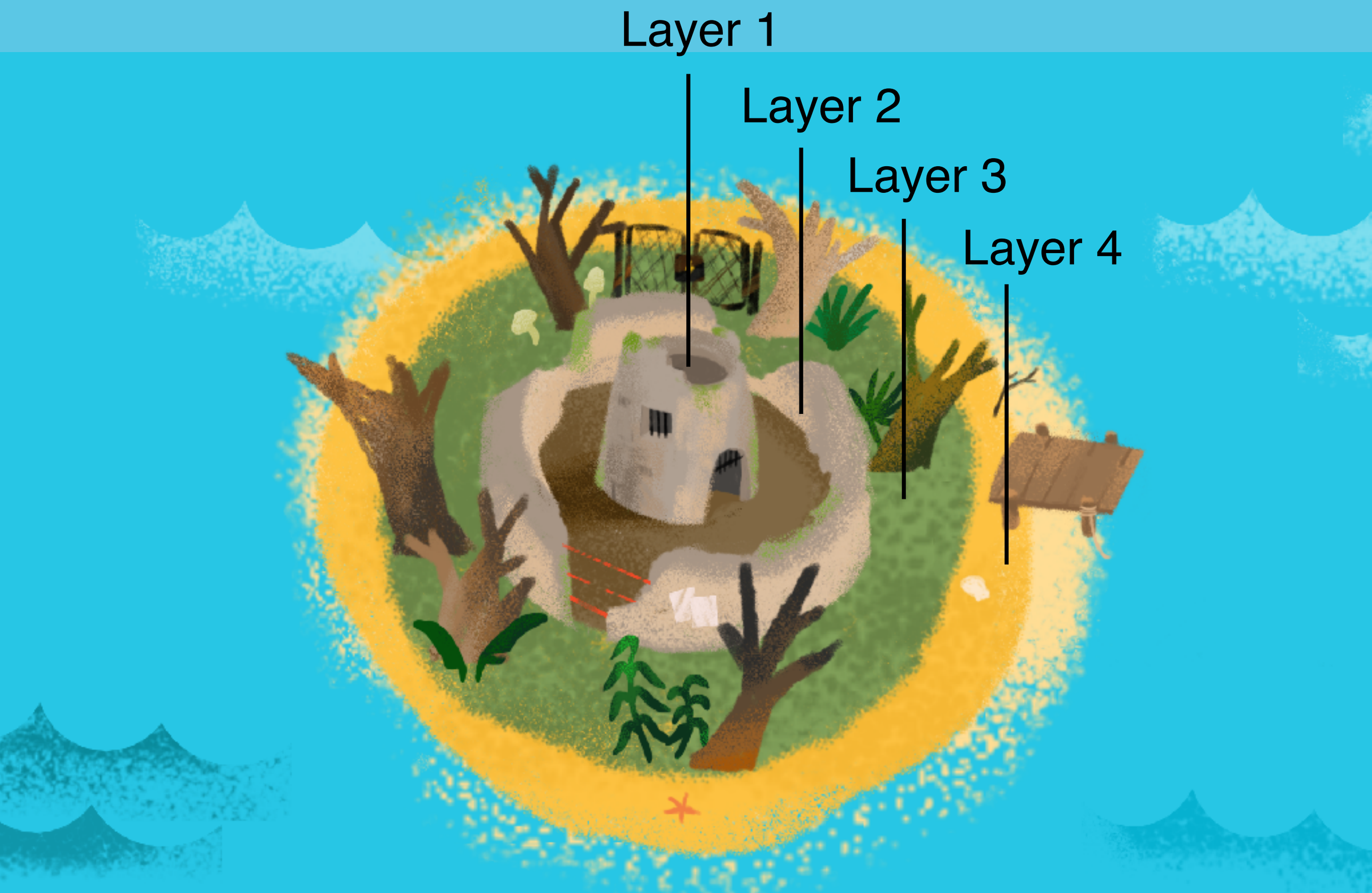
Farthest ← Nearest

dynamic boundaries

Game Design*

* We have improved the game design after camera-ready version.

Multi-layer panorama scene

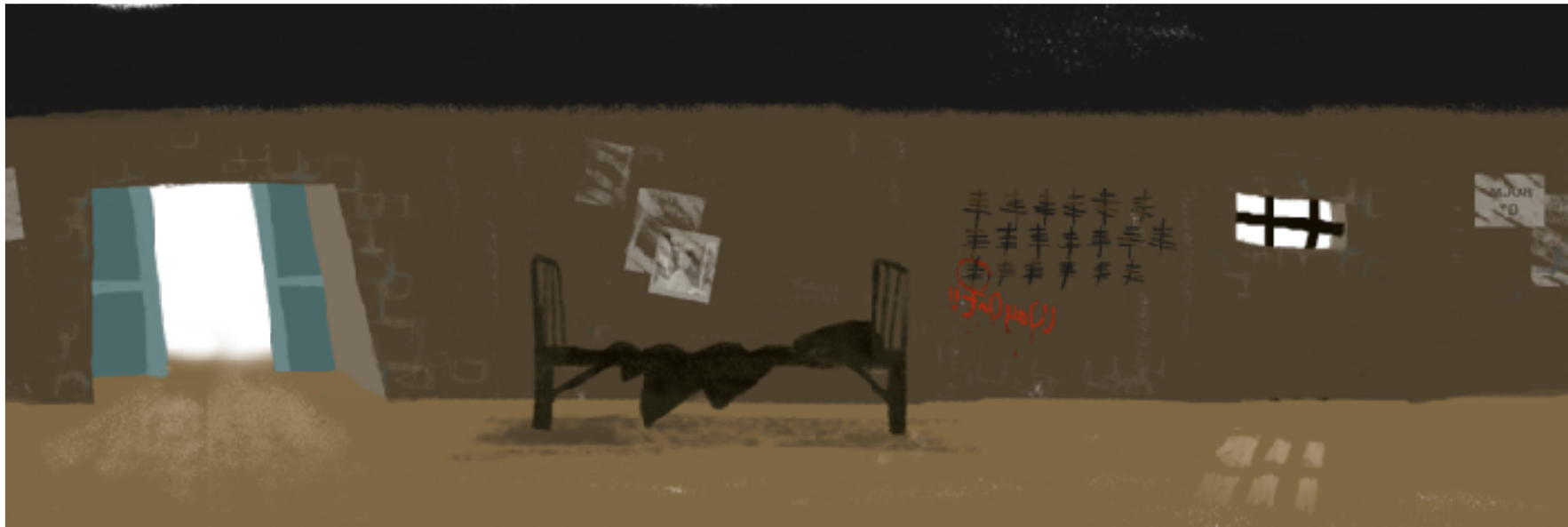


Far

Layer 1

Cell

Near body



Far

Layer 2

Wall

Layer 1

Cell

Near body

Far

Layer 3

Forest

Layer 2

Wall

Layer 1

Cell

Near body

Far

Layer 4

Shore

Layer 3

Forest

Layer 2

Wall

Layer 1

Cell

Near body

Far

Layer 4

Shore

Layer 3

Forest

Layer 2

Wall

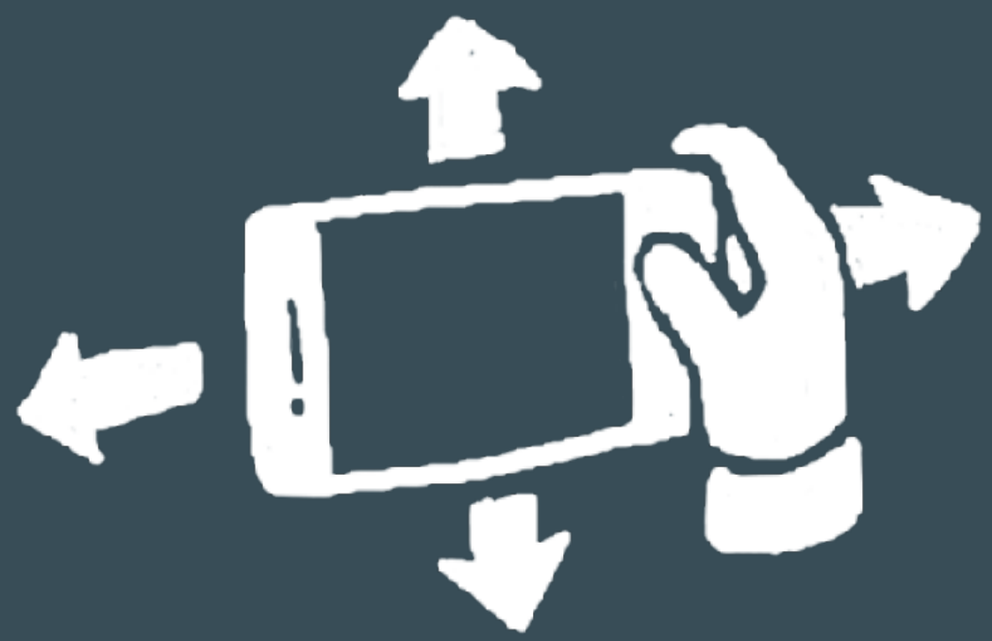
Layer 1

Cell

find a way out

Near body

Navigation in 3D space



Explore current layer

Cross different layers

Dragging and manipulating items

Drag items

Shake tools

Way Out explores the around-body interactions in multi-layer panorama:

- Making use of spatial memory
- Navigation matching body movement
- Preserving immersion

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