



REINVENTING RTS FOR VR

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Lead Designer – Hidden Path Entertainment

XR Developers Conference 2018 – October 29-30, 2018

#XRDC18

WHO'S THIS GUY?

- Made some stuff
- 25 years
- Yadda yadda



HIDDEN PATH[®]
ENTERTAINMENT



WHO'S THIS GUY?



I AM OLD

HIDDEN PATH[®]
ENTERTAINMENT



The background is a dense, intricate field of golden-brown gears and mechanical parts, creating a steampunk aesthetic. The main title 'BRASSTACTICS' is rendered in a large, bold, metallic font with a 3D effect and a gold outline. Above the letters 'S' and 'T' are two small flags, one red and one blue. Below the title is a decorative horizontal bar with a central shield-like emblem featuring a blue and gold design.

BRASSTACTICS

THE PITCH



KIT HARRINGTON



THE PITCH



+



+



=





PILLARS

- Familiar RTS Gameplay
- Innovation in Interaction
- A Tangible Play Space

PROTOTYPE PLAN

- Limited team
- Unity Engine for Prototype
 - Unreal Engine for Production (!)
- Demonstrate “Real-Time Strategy in VR”
- Embrace Oculus Touch
- Generous time to explore
 - Thanks Oculus!



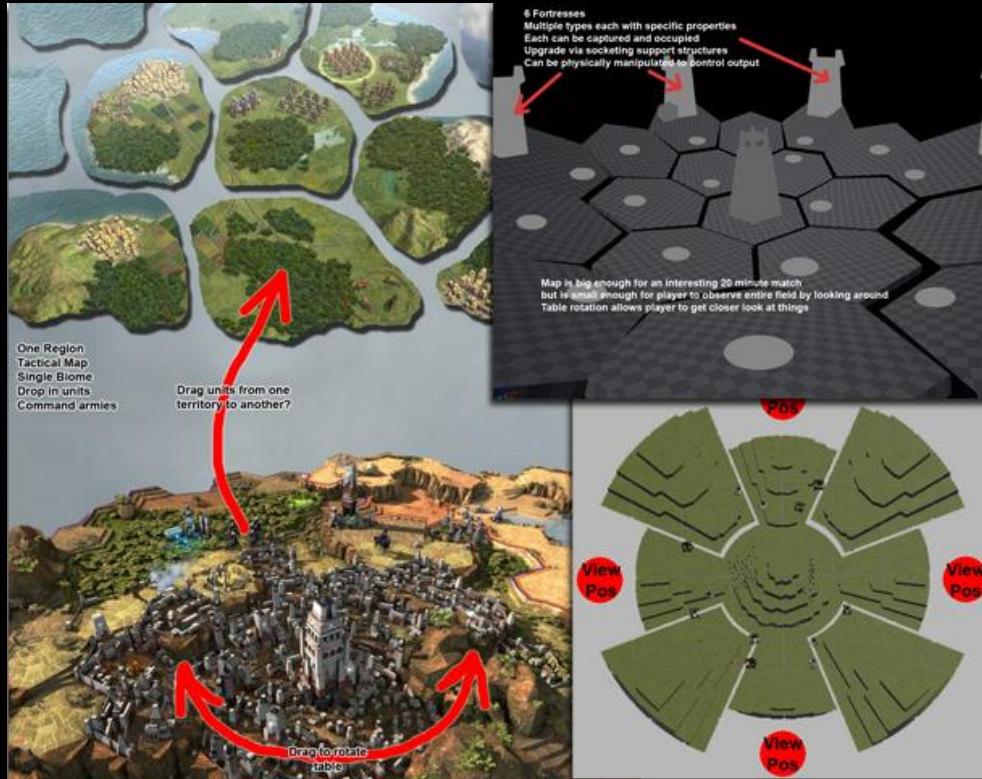
BRASSTACTICS

THE PLAY SPACE

PLAY SPACE OBJECTIVES

- Reasonable map size
 - For ~20–30 minute battle
- Physical feel
- Minimal discomfort
- Blue sky!
 - (See <https://youtu.be/jWQBvDByjHo> for videos)

BLUE SKY MOCKUPS



HIDDEN PATH[®]
ENTERTAINMENT





BOWL-SHAPED MAP WITH PROXY "OPPONENT"



GLOBE-SHAPED MAP



CYLINDRICAL "BARREL" MAP





FLAT MAP WITH MOUSE DRAG



SIMPLE TURNTABLE



TURNTABLE RESULTS

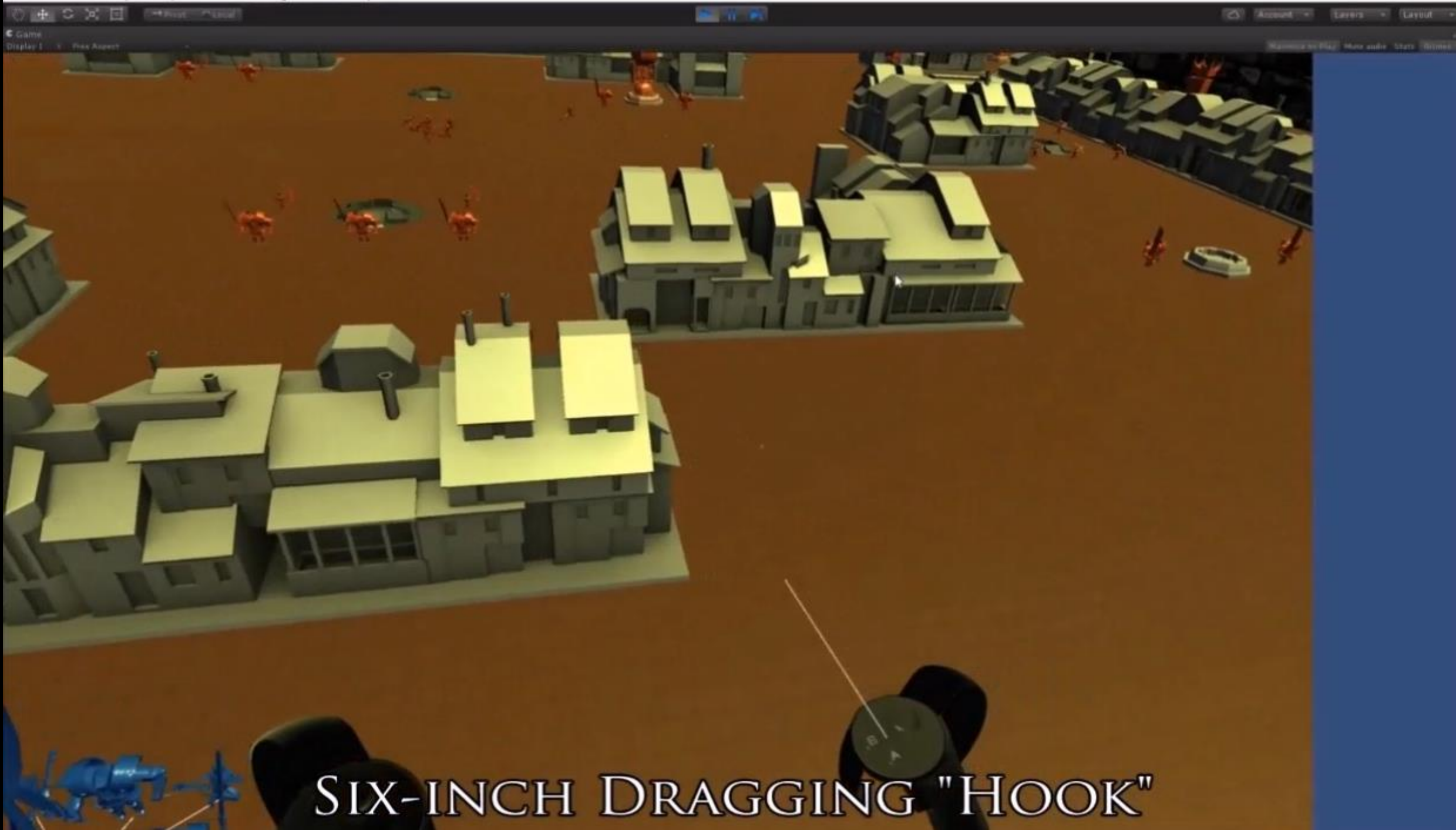
- Pro: Player remains outside the map
- Con: Map is limited in size
- Pro: Map center is tempting as focal point
 - Con: BUT not a great place for gameplay



OCULUS TOUCH TURNTABLE



TWO-HANDED SMOOTHED MAP DRAGGING



SIX-INCH DRAGGING "HOOK"



12-INCH DRAGGING HOOK (HIGH SENSITIVITY)

SIDEBAR: PLAY SPACE AND “REALITY”

Q: The map simulation cannot move... So how do we slide the table?



SIDEBAR: PLAY SPACE AND “REALITY”



A: We attach the room to the player's head and move them together.

MAP TAKEAWAYS

- Fast prototyping won the day
- Body interpenetration = a minor immersion hit...
 - BUT not worth sacrificing gameplay
- Let the player get close to what's interesting!
- An anchor backdrop aids comfort
- Use any trick you can!



BRASSTACTICS

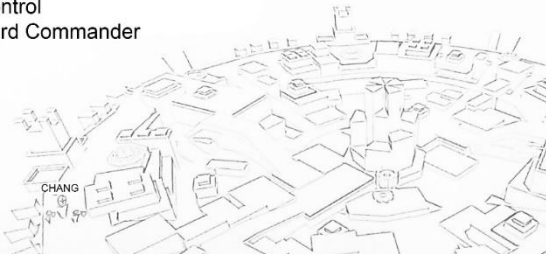
UNIT DIRECTION

UNIT DIRECTION OBJECTIVES

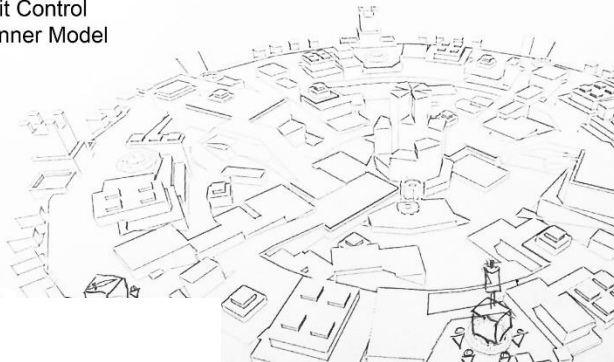
- Command fighting units
- Replace classic RTS mouse actions
 - Click/drag to select
 - Click to move
 - Attack move
- Feel physical and intuitive
- Blue sky!
 - (See https://youtu.be/rAzZE9oN_ks for videos)

BLUE SKY MOCKUPS

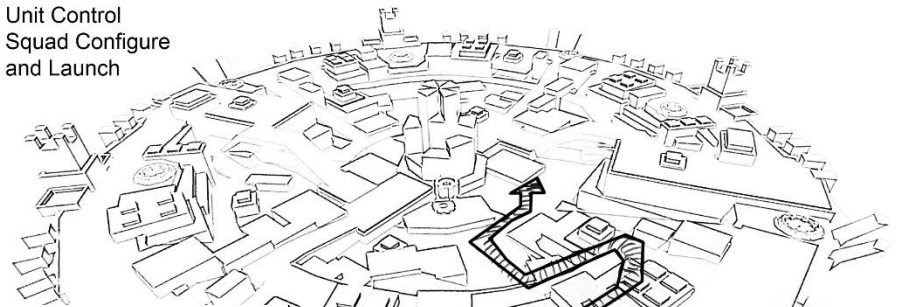
Unit Control
Off-board Commander



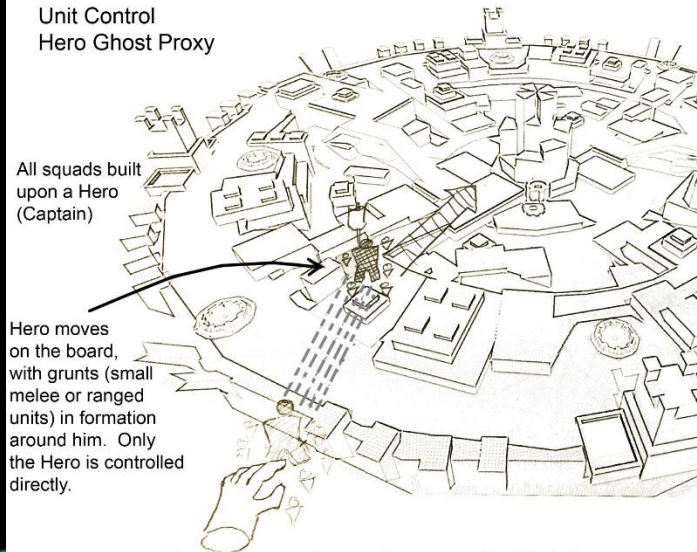
Unit Control
Banner Model



Unit Control
Squad Configure
and Launch

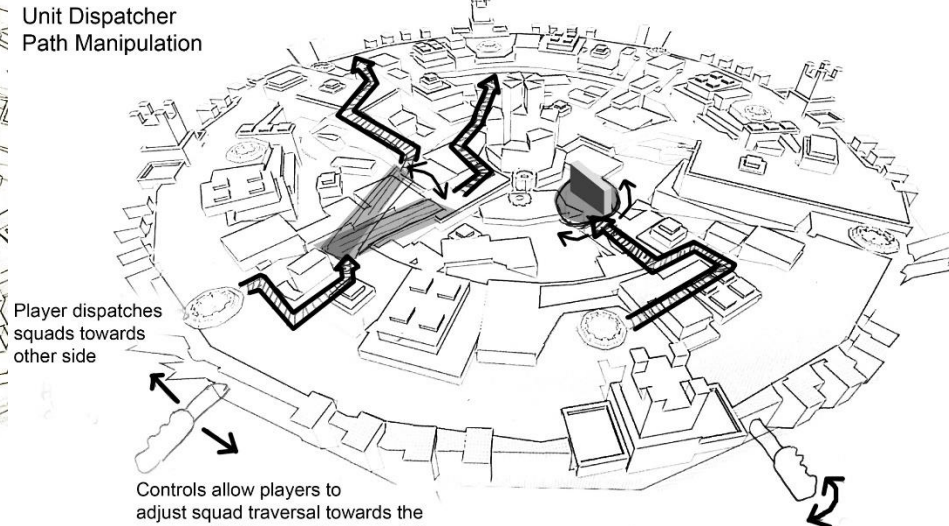


Unit Control
Hero Ghost Proxy



Player points at a hero and engages a "grab". A ghost proxy of the hero and its units floats in the air within arm's reach. Player can rearrange squad formation and makeup on the ghost, and then disengage to "send back" the command to the her

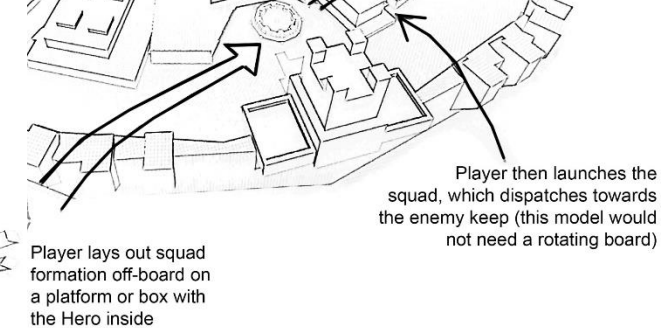
Unit Dispatcher
Path Manipulation



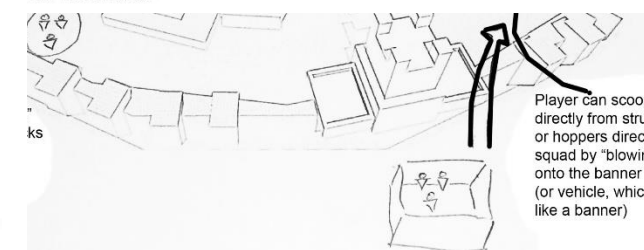
Player dispatches squads towards other side

Controls allow players to adjust squad traversal towards the opponent (bridge positions, roads) like a railroad switch

Rotating a control handle could rotate walls or other platforms, directing troop attack paths



Player then launches the squad, which dispatches towards the enemy keep (this model would not need a rotating board)



Player can scoop units directly from structures or hoppers directly into a squad by "blowing" them onto the banner (or vehicle, which also acts like a banner)



MOUSE CURSOR SELECTION/DIRECTION



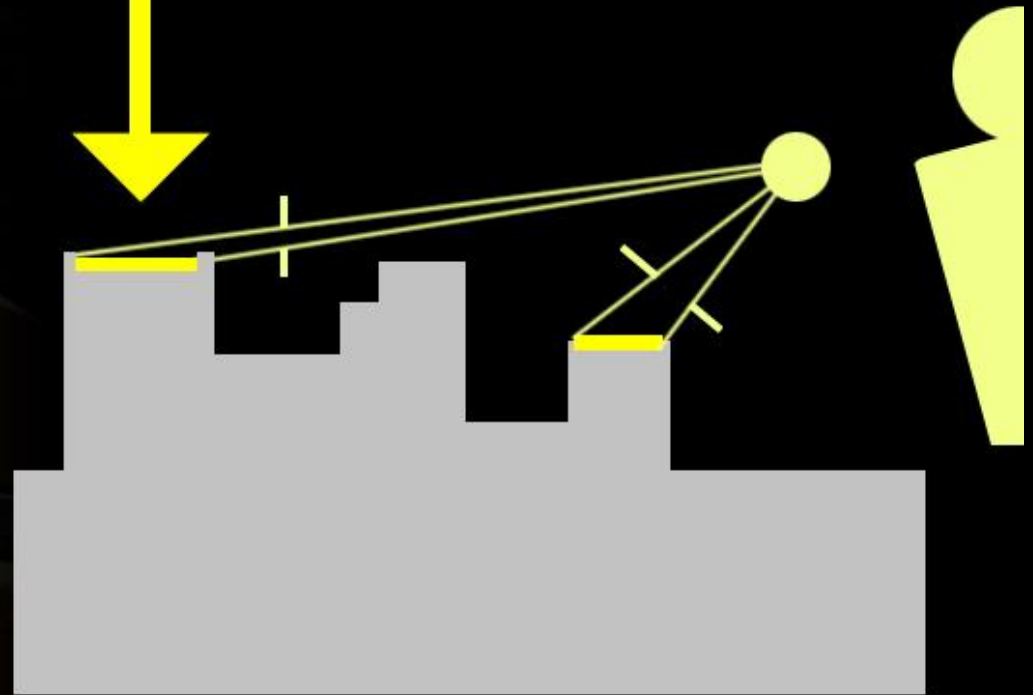


LOLLIPOP SELECTION



LOLLIPOP WITH HAND SPHERE

SIDEBAR: THE POINTING PROBLEM



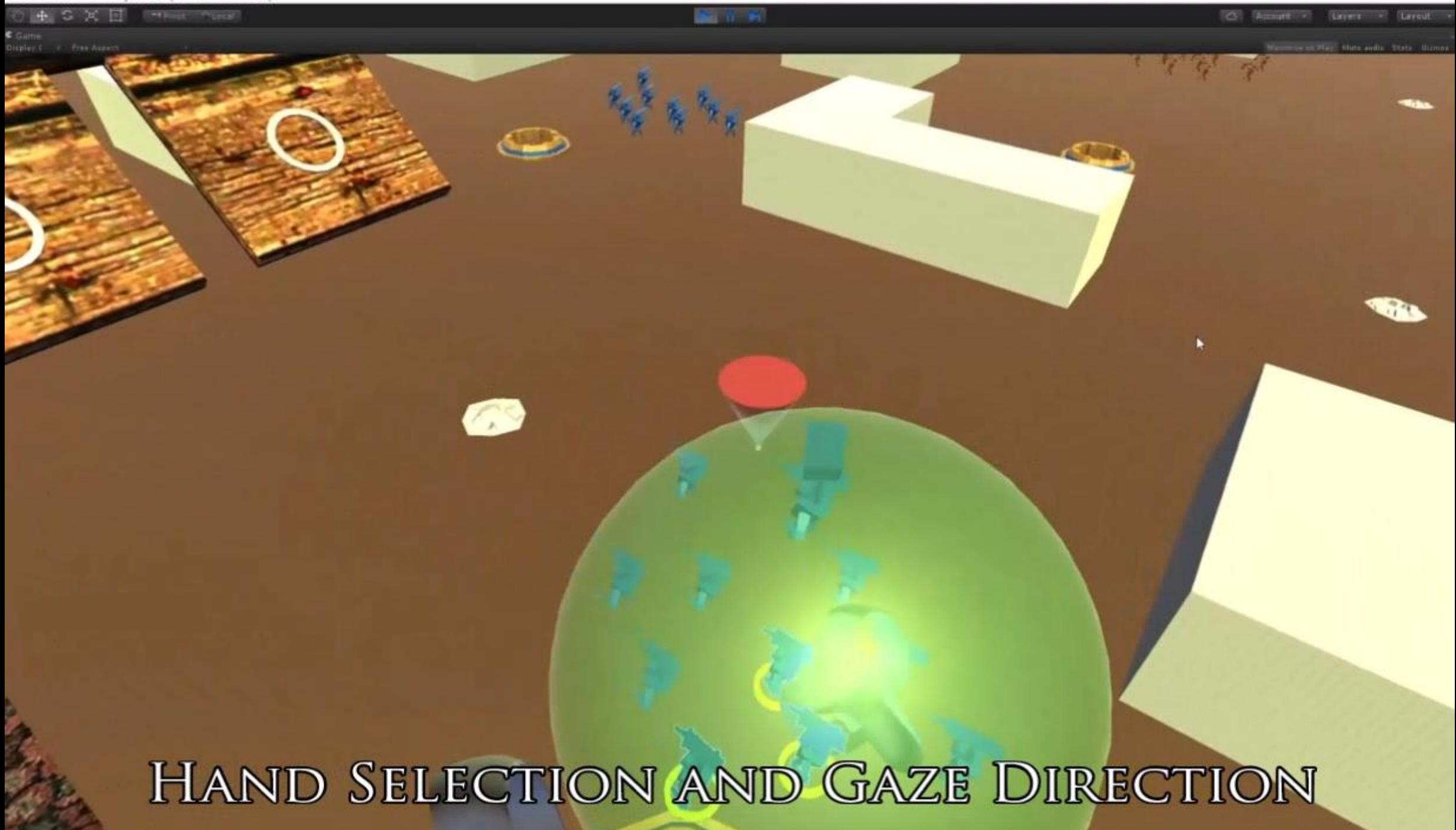
REVISITING PAST SOLUTIONS: GAZE SELECTION



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ENTERTAINMENT







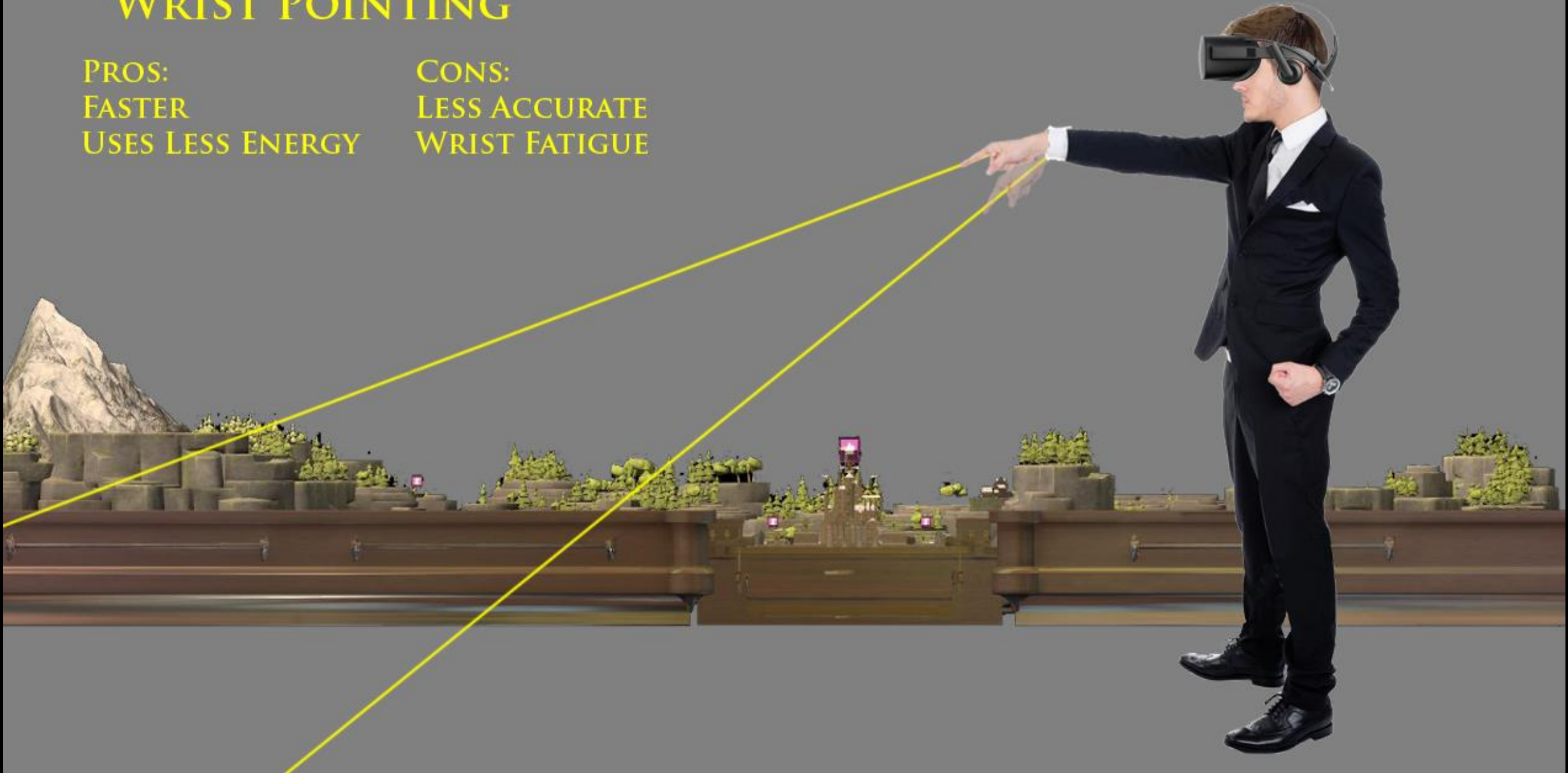
HAND SELECTION AND GAZE DIRECTION

SIDEBAR: THE POINTING PROBLEM

WRIST POINTING

PROS:
FASTER
USES LESS ENERGY

CONS:
LESS ACCURATE
WRIST FATIGUE

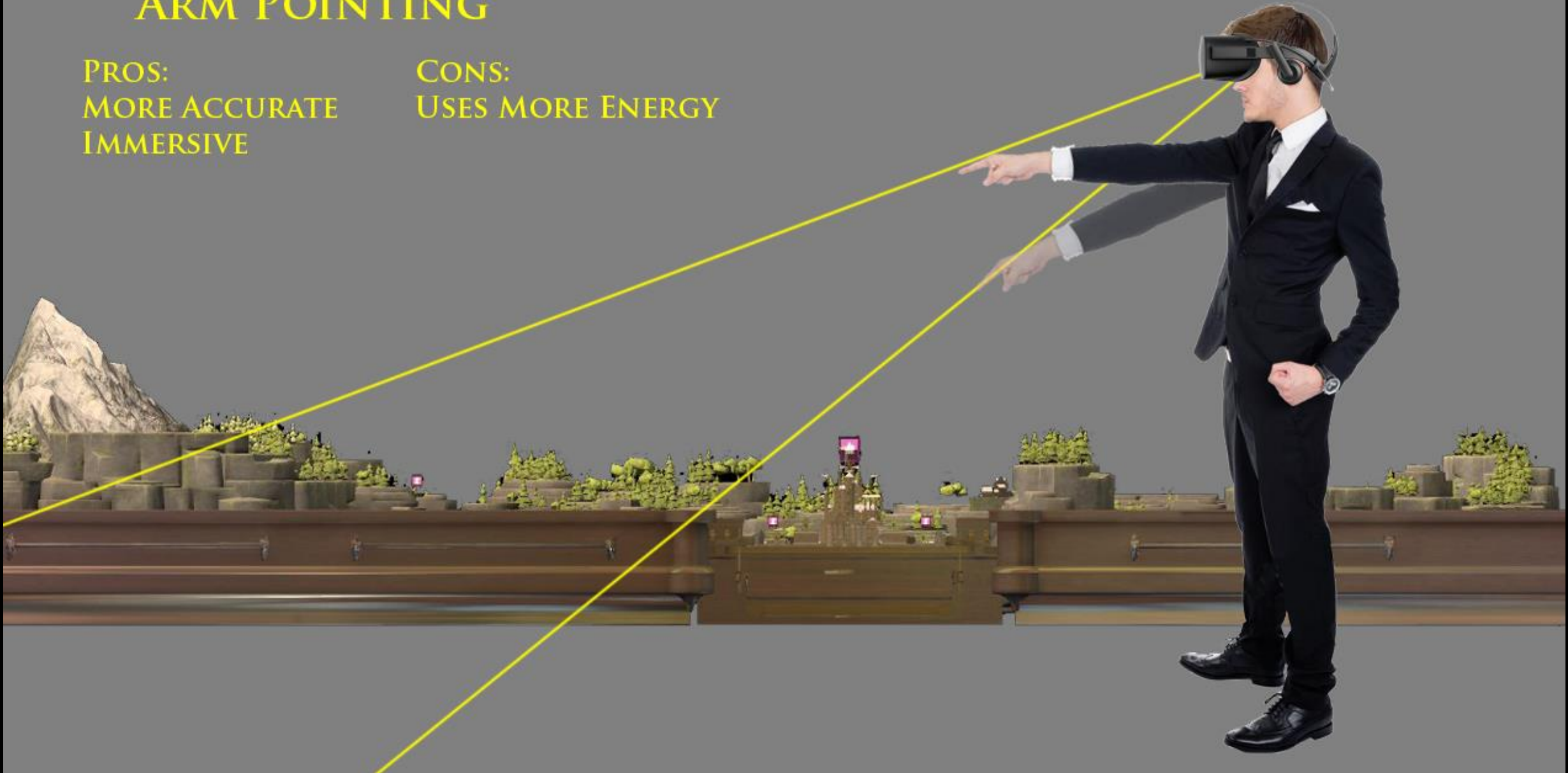


SIDEBAR: THE POINTING PROBLEM

ARM POINTING

PROS:
MORE ACCURATE
IMMERSIVE

CONS:
USES MORE ENERGY





POINT SELECTION AND DIRECTION



POINT SELECTION AND DIRECTION
ARROW STRETCH



IT FELT GOOD!



HIDDEN PATH
ENTERTAINMENT



SELECTION TAKEAWAYS

- Don't have to recreate a mouse experience
- Wrist input = less accurate and fatiguing
 - BUT a great force-multiplier
- If it feels good, keep at it!



BRASSTACTICS

ECONOMY

ECONOMY OBJECTIVES

- Add fighting units to the army
- Upgrade units and capabilities
 - “Tech Tree” style advancement
- Feel physical and intuitive
- Minimize reading and menus
- Blue sky!
 - (See <https://youtu.be/yPo4guze1Tk> for videos)

HIDDEN ENTER



UNIT TOWERS

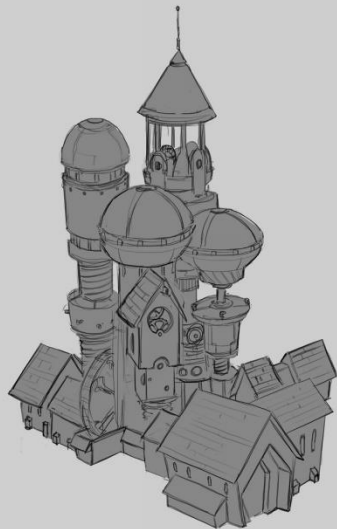




UPGRADES

THE KEEP

BRASS TACTICS



KEEP IS
VERTICALLY
ORIENTED

MOVING DETAILS
IN VISIBLE AREAS

UNITS EXIT
HERE

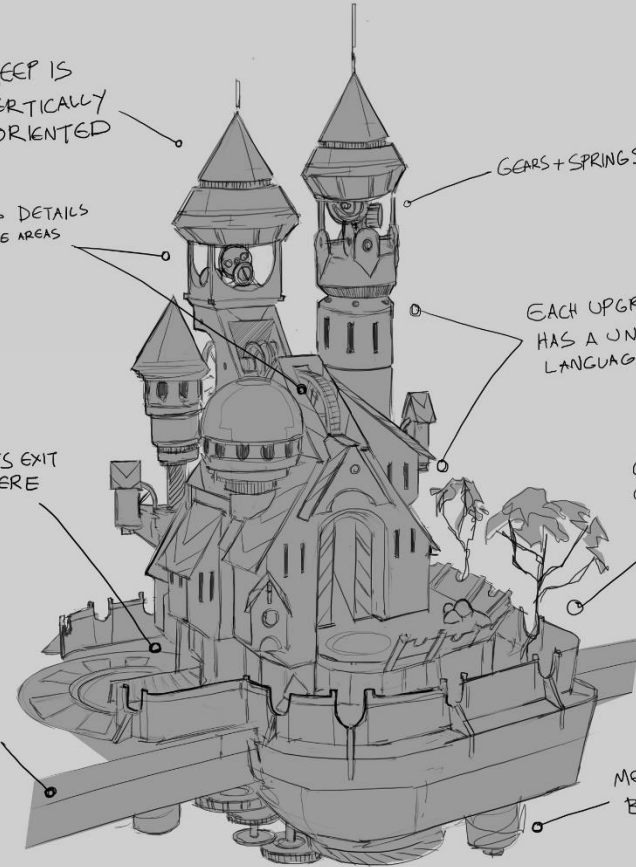
TABLE EDGE

GEARS + SPRINGS

EACH UPGRADE STAGE
HAS A UNIQUE SHAPE
LANGUAGE

GARDEN/
COURTYARD

MECHANISM
BELOW TABLE





Penetrating Arrows
Faster Move
Projectile Defense

15

Stronghold

8

Blacksmith

15

Fire

15

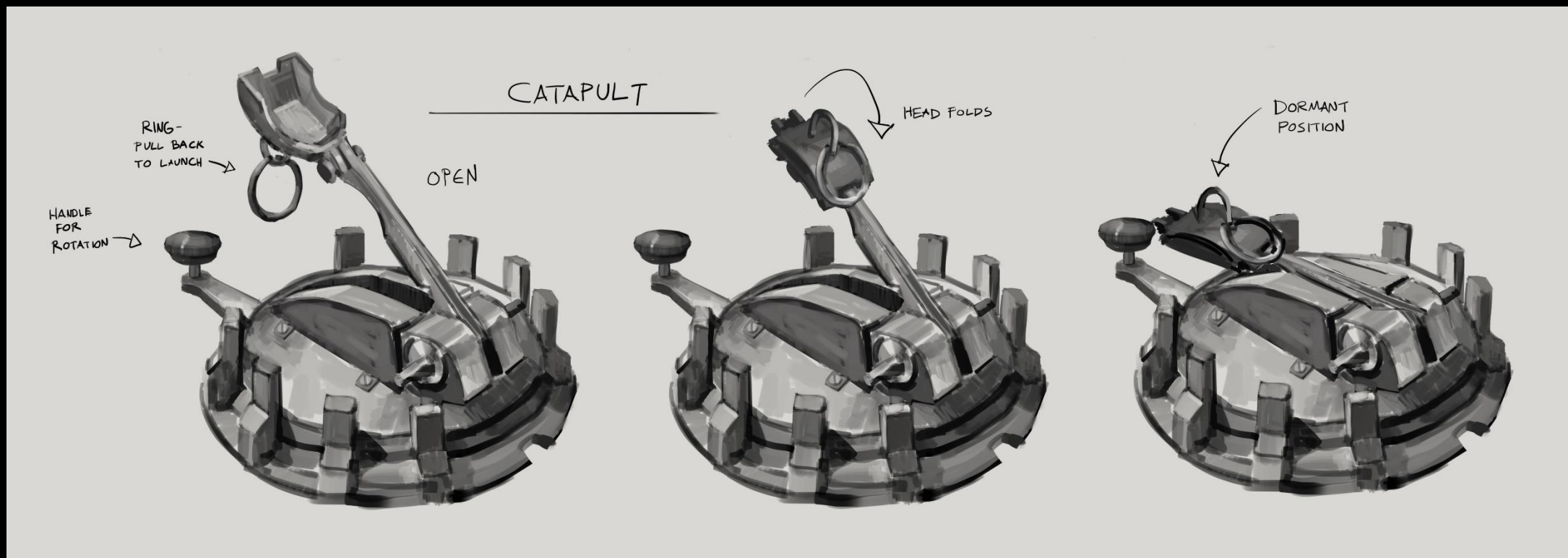
Skirmish Archers

8

Veteran Cavalry

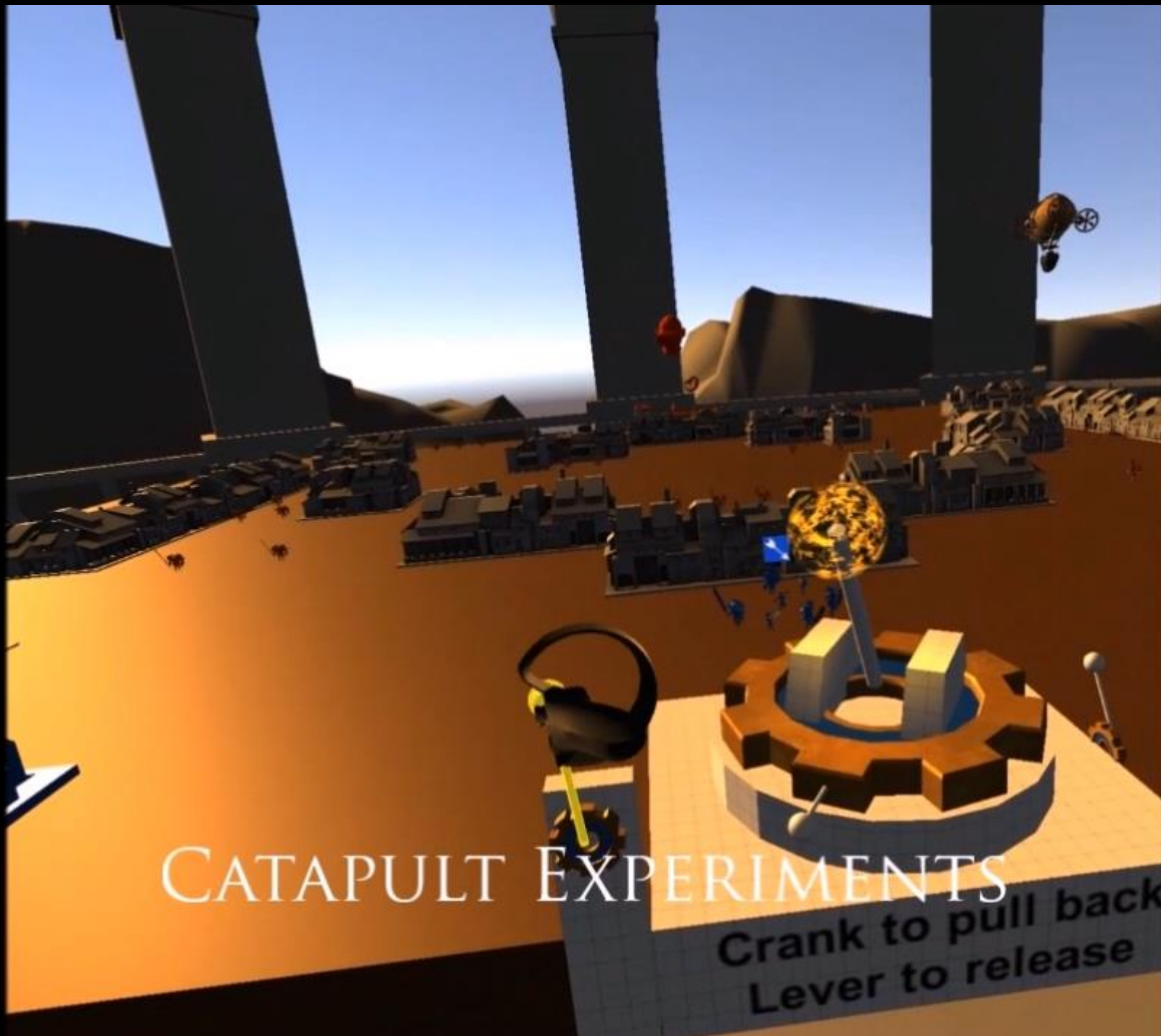
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OTHER EXPERIMENTS





WIND-UP GIANT WARRIOR

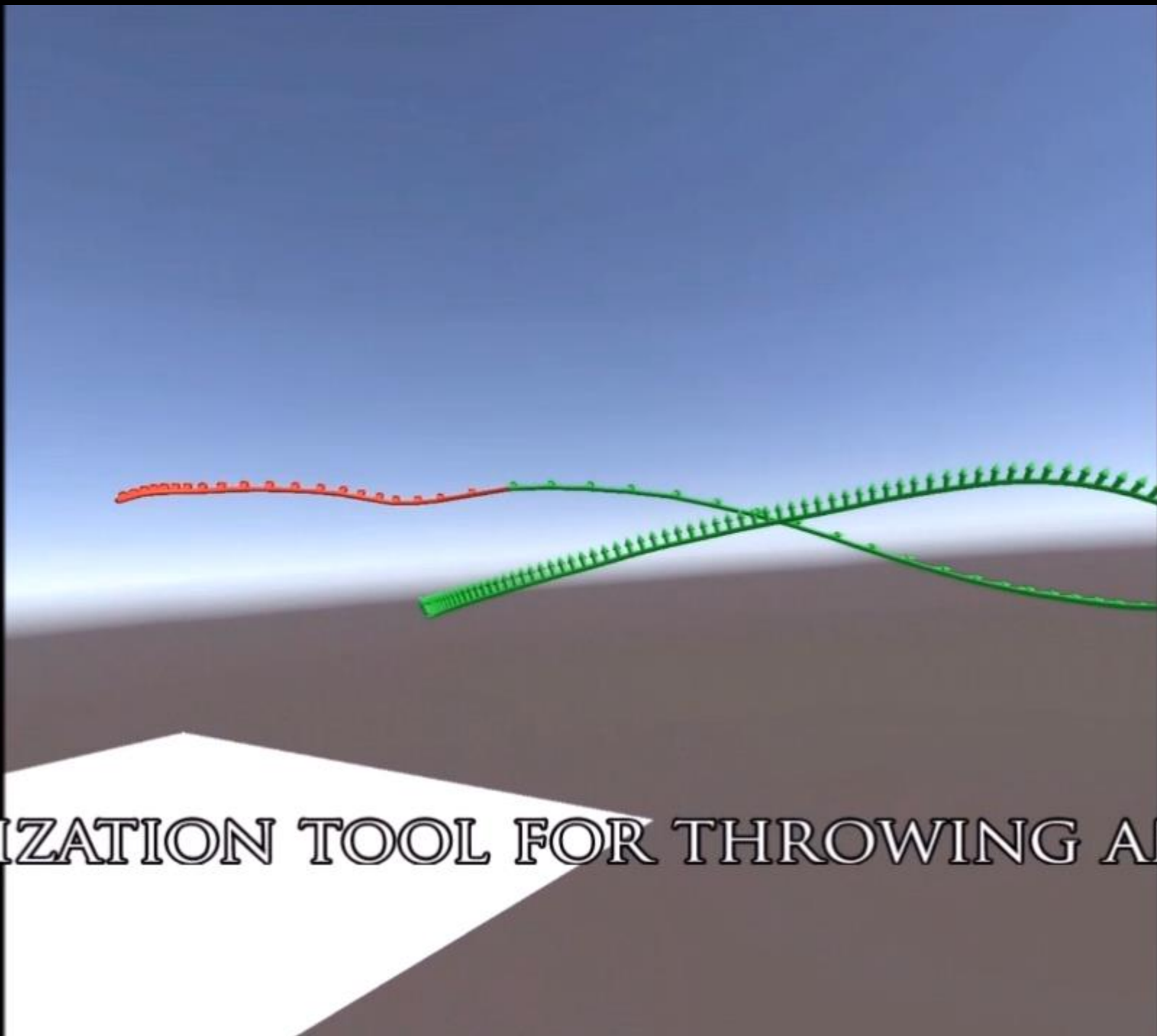


CATAPULT EXPERIMENTS

Crank to pull back
Lever to release



Fireball



VISUALIZATION TOOL FOR THROWING ANALYSIS

FINAL INTERACTION TAKEAWAYS

- Prototype a lot, fail often
- Meaningless motion feels tedious
 - Two hands is immersive but use sparingly
- If it feels good, keep at it
 - Player's action may be a “made up” gesture

RECAP

- Play Space
 - “Table” dragged horizontally with hands
- Unit Direction
 - Pointing-based drag-release
- Economy
 - Tower Palette
 - Upgrade Buildings behind Castle

QUESTIONS?

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