Oculus Setup & Practice Instructions

> 💡 This document contains instructions and useful information for setting up your Oculus headset in preparation for the Generally Intelligent research study.
>
> You should dedicate 30–60 minutes for setup and 60–120 minutes for practice (this time can be broken up).
>
> If you run into any problems during setup or practice:
> 💌 **Send us a message in Slack.** It's helpful if you do it in the shared channel so others can see your question and our response, but feel free to DM us if you're more comfortable with that.
> 📱 **Call/text us!** Sometimes you just need answers right away 🙂 Feel free to call or text Nicole at (203) 451-1589 or Kanjun at (630) 803-8449.

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Intro

What you'll be doing

Welcome to our magical world of Avalon ("the island of fruit trees")! 🌴 We created this naturalistic world as a training ground for AI agents to learn foundational capabilities that may lead to general intelligence, by completing tasks like eating, navigating, and evading predators.

During this study, you will learn to do the same tasks that the AI agent will be trained to do. In the end, we will use your performance data as a baseline to evaluate how the AI agents are performing relative to humans. 📈

In this document, you will set up your Oculus environment and play 20 practice levels (don't worry—many of them are quite short!). Once we're ready to begin data collection, you will be given random tasks to complete in a series of generated worlds. Try your best at these tasks—there will be a prize for the highest human performance! 😉

What you'll need

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- Computer

- Phone

- WiFi connection

- Oculus headset

- USB-C to USB or USB-C cable to connect your Oculus to your computer

Important note

If you're not used to VR, your vision will feel funny after taking the headset off. We've all gotten used to this after about 2 hours of gameplay. Be sure to take a lot of breaks, especially in the first hour or so.

Set up instructions

Preliminary setup

1. Charge your Oculus when you get it. It doesn't come charged, and it'll take about 30 min to charge.

2. Once you turn it on and choose your settings, you'll have to wait for the software update (about 10 min).

3. Once updated, put the headset on and follow the on screen instructions

    a. You will need to be able to connect to WiFi at this step

4. You will be prompted to download the Oculus mobile app and pair it to your headset

    a. If you don't have a Facebook account, you'll need to create one

    b. You do NOT need to add payment info to the Oculus app—simply Skip this step

5. When prompted, put the Oculus back on to finish setup

    a. You will be asked to draw a guardian boundary and take other calibration steps

    b. You are done when you reach the screen where you can open apps

Enable developer mode

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You will need to enable Developer Mode on your Oculus to access our environment.

1. Go to this address on your computer:
   https://developer.oculus.com/documentation/native/android/mobile-device-setup/
   but don't listen to the instructions on the screen! Follow the instructions below to get set up properly.

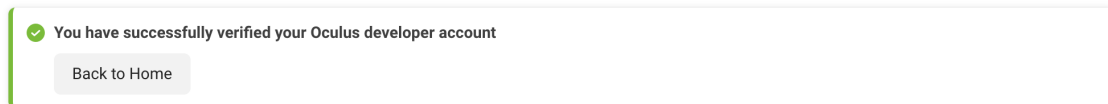
2. Create a new organization

   a. Choose the option to verify using a mobile number. This will open a new tab.

   b. In the new tab, add your phone number. You'll be sent a verification code which you can enter online.

   c. Once your number is verified, you can close that tab and return to the previous one. You should now see something like this:

   To be an Oculus developer, you must establish your identity by providing a credit card or mobile number. If you remove this information, your account will no longer be verified. Learn More

   ✓ **You have successfully verified your Oculus developer account**

   Back to Home

   d. Click Back to Home and create a new organization. You can make up whatever name you'd like — this doesn't get verified.

   Design   Develop   Distribute   Support   Manage

   ## Create New Organization

   What is the legal name of your organization?
   Note: The name you choose here will be displayed publicly in the store.

   Please enter a name (ex: Tuscany Studios)

   We are happy to see that you're interested in developing for Oculus. Creating your developer organization for your Oculus account enables you access to features that are intended for the development of VR experiences. Remember that you have agreed to the Oculus Terms of Service and we may take action against violators. Please be a responsible member of the Oculus community.

   ☐ I understand

   Submit

3. Turn on Developer Mode in Oculus mobile app

   a. Open the Oculus mobile app

   b. Navigate to Menu > Devices

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    c. Select your headset from the list

    d. Under Headset Settings, click Developer Mode and toggle it On

Install the APK

1. On your computer, download and install SideQuest from here: https://sidequestvr.com/setup-howto

    a. For Mac users:

        i. Click on the Apple icon in the top left corner of your computer screen. Click on About this Mac.

        ii. If your Mac has an Intel processor, download the Intel version

        iii. Otherwise, download the M1/ARM version

    b. For Windows users:

        i. Download the Windows version

2. After installing, connect the Oculus to your computer with a USB cable

3. Put your headset back on and grant your computer permission to access your headset

4. Take the headset off and open the SideQuest app on your computer

    a. In the upper left corner of SideQuest, you should see a green dot with your connected device. If you don't see this, try unplugging your Oculus and granting permission again.

    b. Make sure you're using a trusty and working USB cable/connection. The wired connection can be finicky!

5. In the upper right corner of SideQuest, select the "Install APK file" icon

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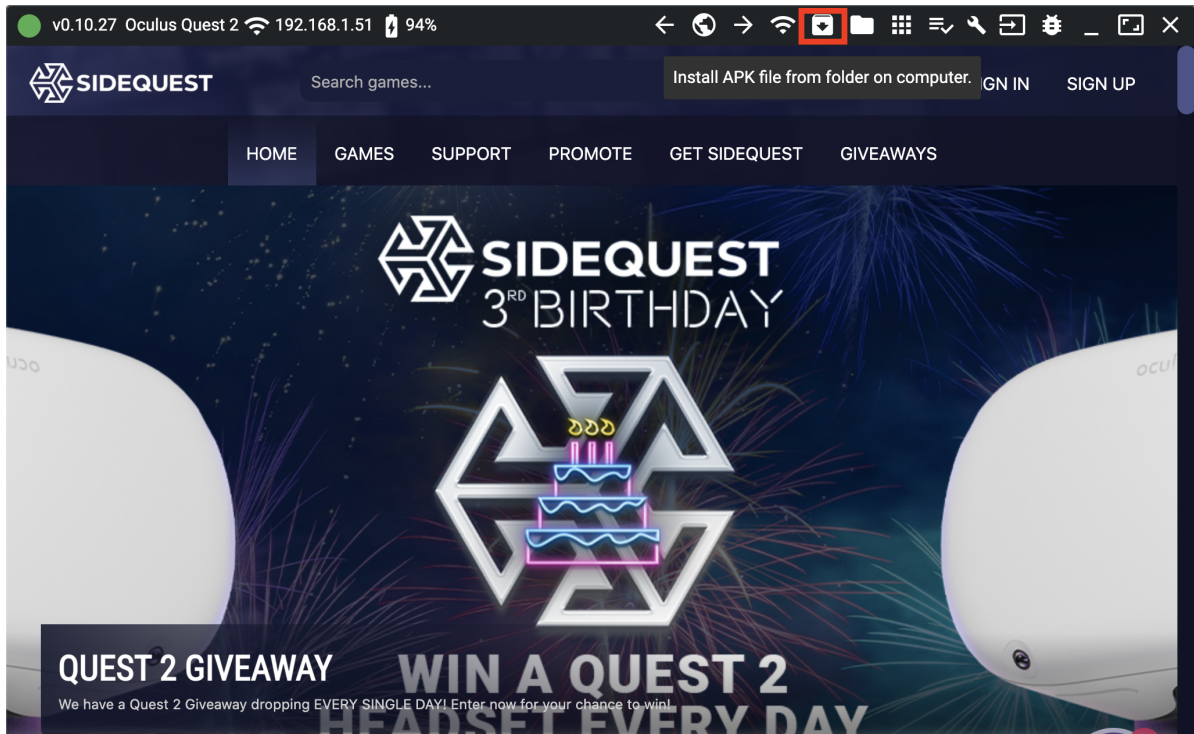
6. Select the .apk file we'll provide you

    a. Wait for the installation to complete

    b. After the .apk file is installed, you can disconnect the headset from your computer

Launch the app

1. Put your headset back on **and stand up**

    a. It's important that you stand up whenever you open the app—this helps us calibrate your height. If you forget to do this, just quit the app by pressing the Oculus button, stand up, and open the app again.

2. Open the Avalon app

    a. Go to "Apps" (the lower left icon in the dock)

    b. From the menu in the upper right corner, select "Unknown sources"

    c. In the list, click on the "avalon" entry

3. You should see a beautiful tropical island scene. Welcome to the world of Avalon! 🎉

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💡 Note that the game will feel jittery and low-resolution. This is intentional, so the game can run fast enough to train the AI agent and to make sure you don't get sick.

After about an hour of playtime, your body should get used to it. You will feel a bit cross-eyed when you get out of VR for a few minutes.

If this is causing issues, please let us know!

Game instructions

Controls

- Right hand

    - A: Jump

    - B: No, Back

    - Analog stick: Rotate your body

        - You can also physically turn as you naturally would

    - Forefinger trigger: Grab

    - Middle finger trigger: Unassigned (doesn't do anything)

    - Oculus button: Quit the app

- Left hand

    - X: End level

        - This will return you back to the main level. You should press this button if you run into any issues during gameplay or need to quit a level for any reason.

    - Y: Yes, confirm

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- Analog stick: Move

    - You can also physically move around as you naturally would—just be careful of your surroundings!)

- Forefinger trigger: grab

- Middle finger trigger: Unassigned (doesn't do anything)

Actions

Your hand turns green when it's able to grab an object.

- To pick up an object:

    - Reach your hand into the object

    - Your hand should then turn green

    - Press and hold the forefinger trigger button on either hand to grab it

- To climb:

    - Stick your hands in climbable terrain (white cliffs; brown is not climbable)

    - Your hand should then turn green

    - Press and hold the forefinger trigger button on the green hand to grab

    - Move your hand downwards to move your body up

    - Reach up and grab the terrain with your other hand

    - Move your hand downwards again

    - Repeat in a climbing motion

- To climb with one hand while holding an object:

    - Grab the climbable terrain with one hand above your head

    - Move your hand downwards quickly, and grab above your head again

    - The downwards movement should propel yourself upwards

Completing the practice episodes

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In your 7 hours of data recording, you'll be playing many "episodes". Each episode will take between ~10 seconds to ~15 minutes to complete.

Goals of each episode

Your goal in each episode is to find the food and eat it as fast as possible, without dying, and before time runs out. Your score will be determined by how quickly and efficiently you find and eat the food.

- In each episode, there is either:

  1. a fruit tree with food on it, or

  2. a building with food in it, or

  3. prey animals that you can kill and then eat.

- The goal is to get and eat that food.

- Some episodes have multiple pieces of food (fruit or prey) in it. If you think you've completed an episode but it doesn't end, that means that there is still food remaining that needs to be found and consumed.

- There are predator animals that will attack you if you come into contact with them. There are also prey animals, and in some levels you will need to hunt them for food. See <u>Animal types</u> for a list of the animals you might encounter.

An episode will end when you:

1. Find and eat all the food (fruit or prey) in the episode, or

2. Die due to being attacked by predators or falling down too far, or

3. Run out of time (you'll see the time limit before you enter the episode)

Types of episodes

There are 20 types of episode in the game. These map to skills that we'd want to see the AI agent be able to learn. The episode types are: `eat`, `move`, `jump`, `climb`, `scramble`, `descend`, `throw`, `hunt`, `fight`, `avoid`, `push`, `stack`, `bridge`, `open`, `carry`, `explore`, `navigate`, `find`, `gather`, and `survive`.

You'll be able to practice 2 difficulty levels for each skill — an easy version, and a hard version — before you move onto episodes that are recorded.

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The episodes vary widely in difficulty, so don't worry if your time for different levels varies wildly! An episode can vary between 10 seconds and 15 minutes.

Taking damage

You can die before you find food. This will end the episode.

There are 2 things that cause damage:

1. **Predators** can attack (hit) you and deal damage to your health.

2. **Falling** from a high enough height can deal damage to your health. Hint: Try to grab the wall to slow down your fall!

You can feel how much health you have by how dim the screen is. As you take more damage, the screen gets darker.

Health

You gain health by eating! Eating fruit and hunted prey animals will all contribute to replenishing your health. As your health improves, your screen will brighten again.

Your health starts at 1.0, but there's no cap on it, so **the more you eat, the more health you have!**

You cannot eat predators that you kill. This is because most animals don't eat their predators! To understand which animals are predators vs. prey, and each of their behaviors, see Animal types.

To begin

When you start up the game, you'll appear near a teleporter platform.

To the left are the practice episodes, and to the right are the recorded episodes.

To select your practice level, walk up to the board and grab the arrows to change the level.

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When you're ready, grab the blue "teleport" orb to enter the level.

Before moving onto the recorded episodes, you'll want to complete the practice episodes to learn the mechanics of the world and how to solve the puzzles.

Completing the recorded episodes

Once you're ready, you can go to the right side teleporter and start playing recorded episodes.

We'll show you a rough estimate of how long the episode might take. This could be wildly off, but is intended to help you make sure you have enough time to complete it.

Remember that **your goal in each episode is to find the food and eat it as fast as possible without dying.** When you play recorded episodes, you wouldn't be told what skills you need to do this — your goal is to puzzle that out!

If you show up in a big world and don't know where the food is, you'll have to explore around a bunch to find it.

We will be recording and sending the actions you take in each recorded episode and sending it back to our server. We will not record the video or audio of the episode.

Reporting bugs

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- If you run into an issue (a bug) while you're playing a level:

  - Press the X (Reset) button to go back to the main menu

  - Write down the `World ID` and `API Version` that is displayed

  - Submit your bug by following the instructions <u>below</u>

- If the app crashes at any point:

  - Make a mental note of what you were doing when it crashed

  - Write down the date and time

  - Submit your bug by following the instructions <u>below</u>

  - Relaunch the app and continue playing

- For instructions on how to take screenshots or record video of a bug, see the <u>Taking photos or videos</u> section below.

Submitting bugs

- For bug reporting, we will be using Nolt: <u>https://avalon.nolt.io/newest</u>

- Sign in with your email address so we know who to ask about the bug

- Scan through already-reported bugs to make sure yours isn't on there—if it is, upvote that one and/or comment on it

- Add a new bug by clicking "Report bug"—this will get sent to a Slack channel that our engineering team will triage

  - Remember to include the `World ID` and `API Version` that you noted when you hit the X (Reset) button

Taking photos or video

To accompany the bug report, you can also take photos and record videos on the Oculus, and send those videos to either Kanjun Qiu or Nicole Seo using Facebook Messenger. From there, you can add a link to the photo/video to the bug report, or download it and attach it to the bug report message. Feel free to friend either of us on Facebook in order to be able to do this!

To take photos or record video on Oculus:

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1. Hit the Oculus button to bring up the menu (right hand)

2. If present, click the camera (📷) or video camera (🎥) icon on the "avalon" tile. Otherwise:

   a. Click the Share icon on the bottom toolbar

   b. Click "take photo" or "record video"

3. The Oculus will wait a few seconds before taking a photo, which gives you time to hit the Oculus button again to remove the menu

4. If you've started taking video and want to stop it, bring up the Oculus menu again

To share recorded photos or videos from Oculus on Messenger:

1. Hit the Oculus button to bring up the menu (right hand)

2. Click the Share icon on the bottom toolbar

3. Click "Share with Messenger"

4. Choose whom to share with

Helpful information

Where do I find food?

There is always fruit on the big fruit trees and inside buildings. You can spot the fruit trees and buildings from a distance, so be sure to survey your surroundings.

Prey animals can also be eaten. You can kill prey animals by hitting them with an object.

If you get stuck…

Sometimes, you might get stuck in a level. This could happen if the tool you need has fallen into a chasm, or if you've wedged yourself into a tree and can't get out, or if you just plain can't figure out the task.

If you get stuck, hit X to end the episode, and Y to confirm. Then, make note of the `World ID` and send it to us, per the Reporting bugs section. This will help us iron out remaining bugs.

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Episode types

The game won't tell you much about what type of episode you'll be playing next. This is because in this study, we are testing how well humans can solve each puzzle they're presented with and figure out what they have to do — if a human can't solve it, we shouldn't necessarily expect our AI to solve it either 🙂

That said, here are a few hints about some of the levels:

- Most levels will have just one piece of food, and one obvious thing to do to get it, but there are four unique levels:
  - `navigate` will start you out in a place where you see the food, but require you to figure out how to get to it, through a bigger world
  - `find` is also a bigger world, and you'll have to find the food!
  - `gather` has multiple pieces of food, and your job is to find them all
  - `survive` has plenty of predators and prey, and your job is to gain as much health as possible (see <u>Health</u> to see how that works) without dying — your end score will be calculated based on your level of health

We will tell you about some of the game mechanics below since they differ from our own physical world and there may not be enough visual feedback in the game for you to figure it out.

Object types

Fruit

There are several different types of fruit, and all fruit can be eaten—sometimes requiring a bit of work.

Different fruits will replenish your health slightly different amounts.

Stones

Stones are square blocks, and can be picked up and stacked.

You can jump on top of stones.

You can't push stones at the moment. This is for a practical reason: when they're pushable, the physics gets very buggy and the stones jitter endlessly.

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Boulders

Boulders are larger, and cannot be grabbed (they're too heavy!), but you can push them by moving forward against them.

You can jump on top of boulders.

Rocks

Rocks are smaller than stones, and can be picked up and thrown. You can't jump on top of rocks.

Logs

Logs can be picked up and carried, and they are thick enough that you can walk on top of them.

Sticks

Sticks are smaller than logs. You can pick them up and throw them, but you can't walk on top of them.

Animal types

There are predators who can hurt you and prey that you can hunt and then eat.

Predators

Here are some general guidelines about predators:

- They usually have a territory or radius and won't attack you unless you enter that range.
  - Some radiuses are larger and some are smaller depending on the animal.
- You can usually kill them in 1–2 hits, except for bears and hippos which are invincible 💪
- You can usually escape them by leaving their territory/range (or killing them, of course)

Bees

Bees are air creatures that will only attack you if you get pretty close to them—they'll stick to their territory otherwise. They'll do a small amount of damage to you but die when they do and can also be killed with one hit.

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Snakes

Snakes are land creates that will only attack you if you get pretty close to them. They mostly mind their business and even try to avoid you unless you get too close. One bite will kill you, but you can kill them first with a single blow.

Hawks

Hawks are air creatures that will attack you if you get even kind of close to them—they will stick to their territory though. They'll attack you once, doing a small amount of damage, then take a break before trying to attack again (if you haven't left their attack radius by then). One hit will do the trick.

Hippos

Hippos are land creatures that will attack you if you get even kind of close to them— thank goodness they're too massive to fit inside a building! They mostly mind their business and even try to avoid you unless you get too close. They'll do a lot of damage if they catch you and will not stop until you're either dead or at a comfortable distance again, so beware! To make matters worse, they are indestructible, so fighting back is folly.

Alligators

Alligators are land creatures that will wander around slowly, minding their own business, unless you get even kind of close to them. They're slow, but they'll do a lot of damage if they catch you and will not stop until you're either dead or have backed off. Luckily, you can usually kill them with a single blow.

Eagles

Eagles are sneaky, sneaky air creatures that will only attack you when you're not looking, so watch your back! They fly around swiftly and randomly making them hard to predict, but they won't ever attack while you're looking at them. They'll do a lot of damage if they catch you and will not stop until either you're dead or you stare them down—be brave! You can kill them with a swift and confident blow.

Wolves

Wolves are ground creatures that will attack you if you get too close to them within their territory, which they roam leisurely. They'll do a lot of damage and keep attacking you until you're dead or have backed off to a comfy distance. Because they're such powerful and majestic creatures, it takes *two* hits to kill them.

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Jaguars

Jaguars are ground creatures that have the power to climb, so think twice about scrambling up a tree to avoid them! They'll attack you if they see you within a pretty wide distance, but little tip… if you stop moving, you just might confuse them and be safe. Their powerful jaws and big claws will do a lot of damage if they catch you, and they won't stop until you're either dead or have backed off enough. They won't be killed easily—it takes two hits to bring them down… if you're brave enough!

Bears

Bears are massive ground creatures that can haul their weight up trees but are too big to squeeze through the doorway of a building. They'll attack you if you get even kind of close to them while they're wandering around slowly. They'll do a lot of damage if they catch you (haven't you seen The Revenant??) and won't stop until you're either dead or have escaped their radius. Like hippos, they're too powerful to overcome, so think twice before trying to pull a Leo DiCaprio 😉

Prey

Here are some general guidelines about prey:

- You can hunt, kill, and eat them for energy!

- You can always kill them with 1–2 hits.

- Unlike predators that will attack you when you get too close, prey will *run away* from you if you get too close.

  - There are some exceptions (e.g. frogs) for animals that are too dumb to run away from you 🙃

Frogs

Frogs are ground creatures that randomly hop around minding their own business. They're too dumb to run away from you and can be killed with just one hit so are easy prey.

Turtles

Turtles are ground creatures that move very slowly and only "run" away from you if you get very close to them. It just takes one hit before you can enjoy a tasty meal 😛

Mice

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These giant rodents are ground creatures that can scramble up trees when they're scared. They won't run away from you unless they see you very close to them, but they're fast little buggers. They're fragile though—one hit will do the trick.

Rabbits

Rabbits are flighty ground creatures that will hop hastily away from you if you get even kind of close to them. If you can catch them, they make a great meal after just one blow.

Pigeons

Pigeons are air creatures that like to stick to their familiar territory. They won't fly away from you unless you get very close to them, but they'll book it out of there when they do —probably because it only takes one hit to kill them.

Squirrels

(Red) squirrels are ground creatures that will run away and scurry up trees if you get too close to them. They're speedy but can be killed with a single hit.

Crows

Crows are cunning air creatures that will fly around slowly unless you get even kind of close to them—then they will kick it into high gear and get the heck out of there! With some good aim and a bit of luck, you can kill them with one hit.

Deer

Deer are timid ground creatures that will try to avoid you and will tail it out of there if you get even kind of close to them. They're a big bounty and will replenish a lot of your energy, but it'll take two hits to reap the reward.

I ate the food and my episode didn't end! Is that a bug?

If you ate the food and your episode didn't end, this means that there's more food remaining in this episode's world!

You will have to explore some more, find the food, and eat it 🙂

If you are certain there's no food remaining and your episode still didn't end, you can end it manually (press X), make note of the world ID, and send it to us per the Submitting bugs instructions.

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