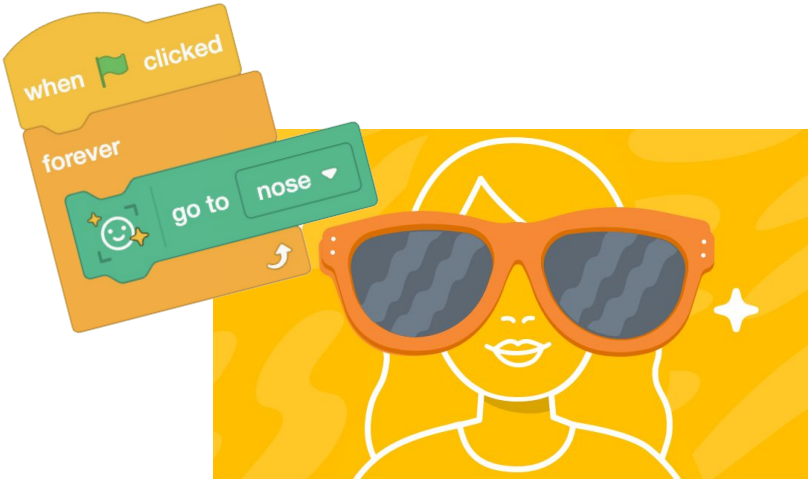
Scratch and AI: Face Sensing



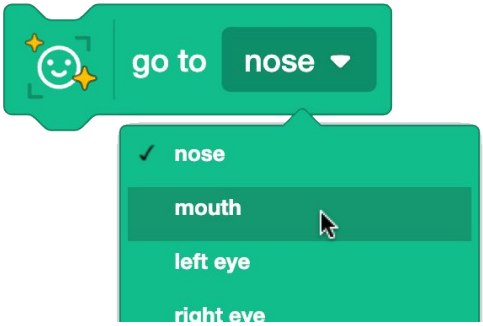
Explore ways AI can be integrated into Scratch projects on Scratch Lab

Cards in This Pack

- Try Out Face Sensing
- Create a Face Filter
- Create a Face Sensing Game
- Create a Face Sensing Sound Board
- Use Your Nose As a Pen
- Fool the AI / Save Your Project

Or combine with other cards like “Pong Game” or “Catch Game” but alter the code to make your face control the player!

Try Out Face Sensing



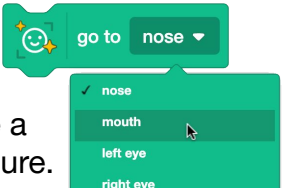
- Go to **lab.scratch.mit.edu/face** and **click the "Try it out" button**.
- **Select the "go to nose" block**.
- **Click the block while your face is visible on the stage**. Did the sprite go to your nose? Move and click again.
- What happens if you click on the dropdown list and choose another feature for the sprite to go to?

Try Out Face Sensing

lab.scratch.mit.edu/face

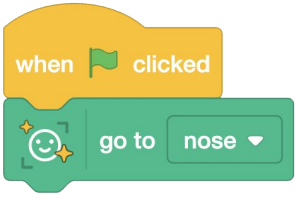
GET READY

Choose any sprite.



Choose a facial feature.

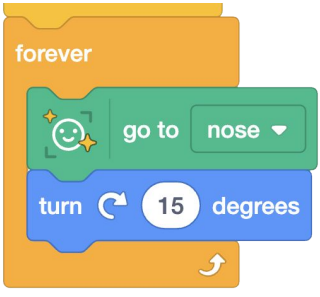
ADD CODE



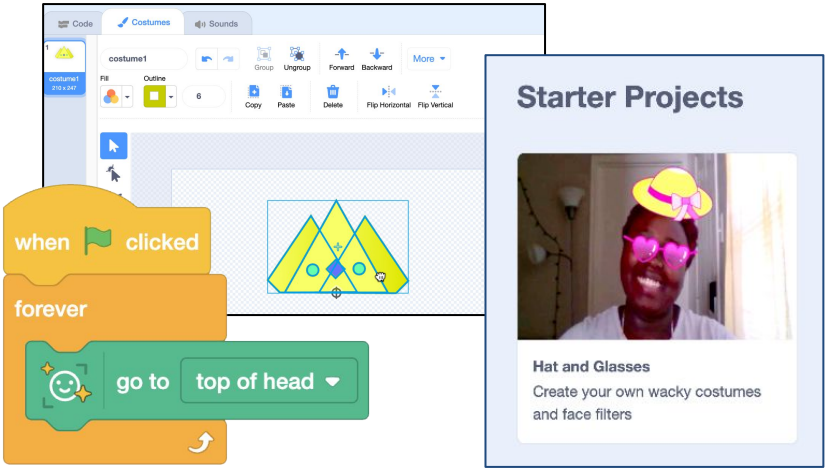
1. Add a “when green flag clicked” block to the “go to nose” block. Click the green flag.

2. Next, add a “forever” loop to have the sprite stick to your chosen feature.

3. Try adding additional blocks from the Motion or Looks category to animate the sprite.



Create a Face Filter



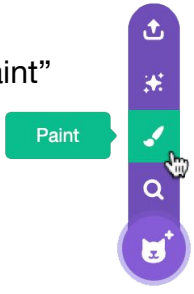
- Go to **lab.scratch.mit.edu/face**.
- Draw your own hat, glasses, or other accessory with the **Scratch paint editor** tools and **code a face filter**.
- *Optional*: On the Face Sensing homepage, click on the **"Hat and Glasses" starter project** to experiment with the sprites and sample code.

Create a Face Filter

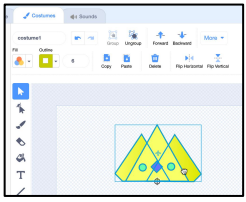
lab.scratch.mit.edu/face

GET READY

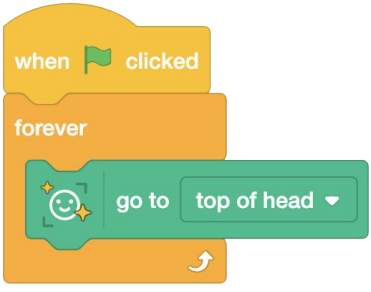
Choose “Paint” from the sprite menu.



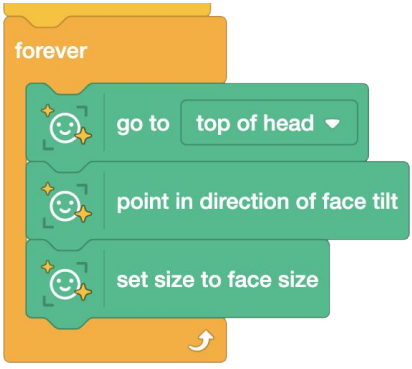
Use the tools to draw a hat costume or two.



ADD CODE



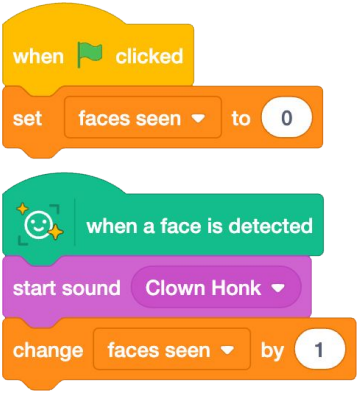
1. Add code so it sticks to the top of your head.

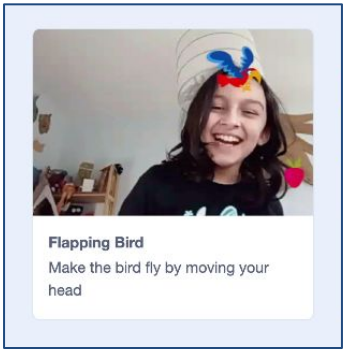


2. Next, add blocks so the sprite scales to match the size and points in the direction of your face.

Have multiple costumes? Add code to switch costumes.

Create a Face Sensing Game





- Go to **lab.scratch.mit.edu/face**.
- **Code a game that uses your face to score points or control a player sprite**.
- *Optional*: On the Face Sensing homepage, click on the **"Flapping Bird" starter project** to experiment with the sprites and sample code.

Face Sensing Game

lab.scratch.mit.edu/face

GET READY

Choose a first sprite.

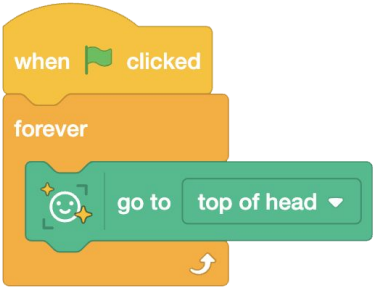
Parrot

Choose a second sprite.

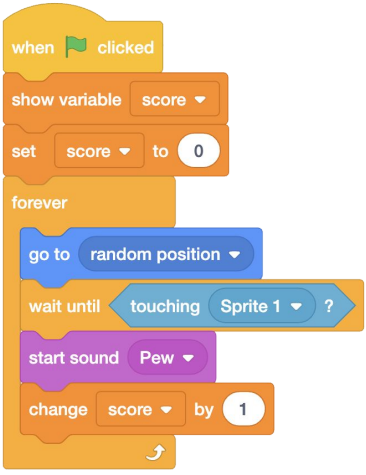
Strawberry

ADD CODE

1. Add code to the first sprite so you can control it with your face. This will be the player.

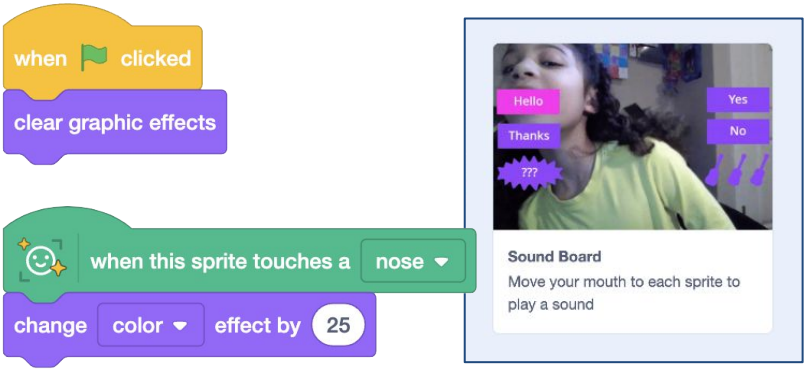


2. Add code to the second sprite so it moves to a random position on the stage and gives the player a point when they touch.



3. Create a score variable to track points. Don't forget to reset it each time a new game is started. Make customizations!

Create a Face Sensing Sound Board



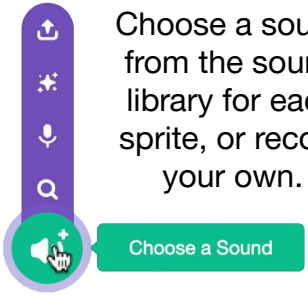
- Go to **lab.scratch.mit.edu/face**.
- Choose a variety of fun sounds or record your own and **code a sound board.** Or code effects controlled by your face.
- *Optional*: On the Face Sensing homepage, click on the **"Sound Board" starter project** to experiment with the sprites and sample code.

Sound Board

lab.scratch.mit.edu/face

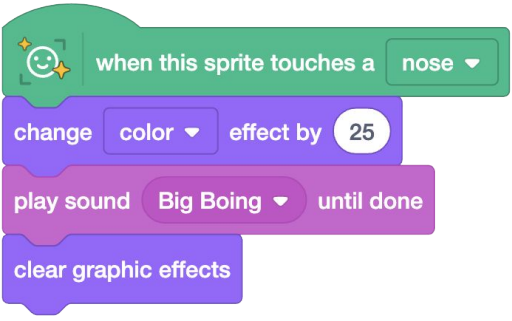
GET READY

Choose a few sprites, or draw your own.

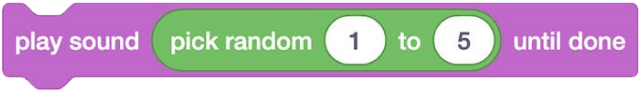


Choose a sound from the sound library for each sprite, or record your own.

ADD CODE



1. Add code to each sprite to play a sound, change an effect, or perform another animation when parts of your face touch them.



2. Try adding multiple sounds to a sprite. Use the “pick random” operator so each time is a surprise.

Use Your Nose As a Pen

- Go to **lab.scratch.mit.edu/face** and **click the "Try it out" button**.
- **Add the Pen Extension.**
- **Select the "go to nose" block**.
- **Put the pen down** and use your nose to draw.
- *Optional*: Use your head tilt to put the pen up and down. Or try adjusting the pen size based on your face size.

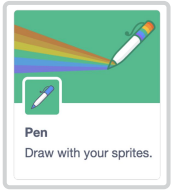
Use Your Nose As a Pen

lab.scratch.mit.edu/face

GET READY

Choose any sprite to act as the Pen.

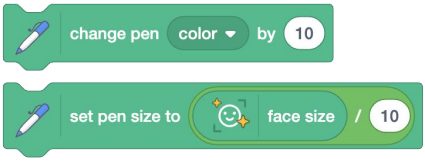
Add Pen Extension.



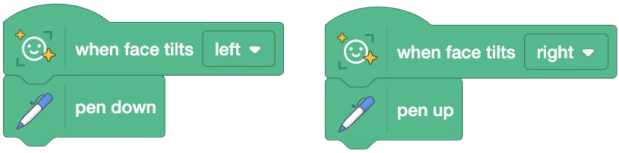
ADD CODE

1. Add a Pen block to put the pen down. Then have the pen follow your nose.

2. Try variations like changing the pen color or setting the pen size based on your face size.



3. Want more control? Use “when face tilts” to control when the pen is up and when it is down.



Fool the AI

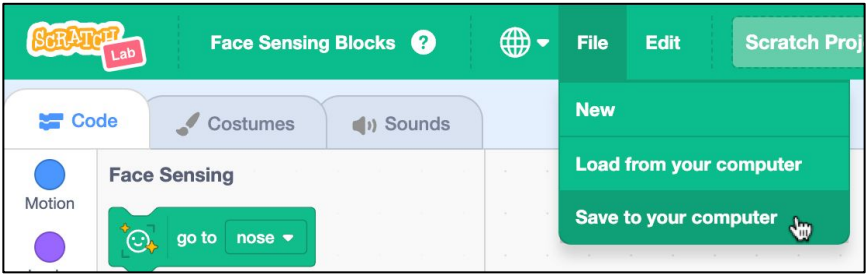
Face Sensing blocks try to detect if a face exists, but they are not able to identify who the face is, or even if it is a human face! That means sometimes the AI makes interesting mistakes. Identifying these mistakes can help us see the difference between our own human intelligence and AI.

Can the AI find the parts of a face if:

- you are in disguise, your face is covered, or your face is tilted or upside down?
- the lighting in the room is very bright or very dark?
- you step out of frame and hold up a drawing of a smiley face? a stuffed animal? a pet? two googly eyes attached to fingertips? or another facelike object made of different materials or from nature?

What variables can you change to try to fool it into thinking it sees a face? What limitations can you find?

Save Your Project



Projects created on Scratch Lab cannot be saved to an account on scratch.mit.edu. But the file can be saved to your computer and uploaded to the Scratch Lab project page if you want to continue working on your project.

- Click "**File**," then choose "**Save to your computer**."
- Next time you want to work on your project, **go to lab.scratch.mit.edu/face** and click "**File**," choose "**Load from your computer**," and upload your project.