TMPose2Scratch and TM2Scratch: Teachable Machine in Scratch

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What TMPose2Scratch and TM2Scratch are, how to open them, a first pose-controlled Scratch game step by step, and where the camera picture goes.

TMPose2Scratch is a free Scratch extension that loads a pose model you trained in Google's Teachable Machine, so a Scratch sprite can react when you raise your arms, lean or crouch; its sister extension TM2Scratch does the same for image and sound models. Both come from developer Junya Ishihara (champierre) and colleagues, have been free and open source since 2020, and run in a modified Scratch in Chrome, not in the regular Scratch editor. Open TMPose2Scratch at champierre.github.io/tmpose2scratch, or both in Stretch3. No account is needed.

This guide is from Peabody (peabody.kids), a free reading and learning site for kids, free through the end of 2026. These extensions aren't ours and nobody paid to be listed. We read their READMEs (TMPose2Scratch, TM2Scratch) and opened both editors on 29 October 2026. Our TMPose2Scratch page in the software directory has the facts table.

TMPose2Scratch and TM2Scratch at a glance

- Recognises · TMPose2Scratch: Body poses, from the webcam · TM2Scratch: Pictures (webcam) and sounds (microphone)
- Model made in · TMPose2Scratch: Teachable Machine, Pose Project · TM2Scratch: Teachable Machine, Image or Audio Project
- Where to open it · TMPose2Scratch: champierre.github.io/tmpose2scratch or Stretch3 · TM2Scratch: Stretch3 (stretch3.github.io)
- Price · TMPose2Scratch: Free (AGPL-3.0 open source, donations welcome) · TM2Scratch: Free (AGPL-3.0 open source, donations welcome)
- Account · TMPose2Scratch: None · TM2Scratch: None
- Browser · TMPose2Scratch: Chrome · TM2Scratch: Chrome recommended; the README says Safari and Firefox may not work
- Made by · TMPose2Scratch: champierre; the extension's label credits Tsukurusha, YengawaLab and Google · TM2Scratch: Junya Ishihara (champierre) and Koji Yokokawa (yokobond)

How it works, in two halves

Half one: train in Teachable Machine. Your child stands in front of the webcam and records examples of each pose, such as "arms up" and "arms down". Google says Teachable Machine trains in the browser. Then Export Model, then Upload my model, gives a shareable link. Uploading puts the trained model (not the pictures) on Google's servers, where anyone with the link can use it. Our Teachable Machine guide for kids explains that half in detail.

Half two: use it in Scratch. Paste the link into the extension's pose classification model URL block. The model downloads into the browser, and the extension watches the webcam and announces which pose it sees, roughly once a second. Your Scratch code decides what happens.

A first project: jump when you raise your arms (about 25 minutes)

You need a laptop or desktop with a webcam, Chrome, and enough space to stand back from the camera. Teachable Machine doesn't work on iPads, the TM2Scratch README notes, so use a computer.

1. Open Teachable Machine, click Get Started, and choose Pose Project. It downloads its pose model first; give it a moment.
2. Name two classes. Rename Class 1 to arms up and Class 2 to arms down.
3. Record examples. Under "arms up", click Webcam, step back until your shoulders and arms are in view, and use Hold to Record while you hold your arms up and move about a little. Do the same for "arms down". Aim for a few dozen samples of each.
4. Click Train Model, keep the tab open, then test it in the Preview panel. Arms up: the "arms up" bar should fill.
5. Export Model, then Upload my model. Copy the shareable link it shows.
6. Open champierre.github.io/tmpose2scratch in a new Chrome tab. Click the Add Extension button at the bottom left and choose TMPose2Scratch. Allow the camera.
7. Load your model. Drag the pose classification model URL block into the code area, paste your link into it, and click the block once.
8. Build the jump. Drag when received pose label: (any) and choose arms up in its menu. Under it, add change y by (100), wait (0.3) seconds and change y by (-100).
9. Play. Raise your arms and the cat jumps. Add a second script for arms down that makes the cat say (Ready!).
10. Make it snappier. The block Label once every (1) seconds sets how often it checks; try 0.5. set confidence threshold (0.5) sets how sure it must be before it fires.
11. Save it to your computer from the File menu.

The extension's other blocks, as we saw them on 29 October 2026: pose (any) detected, confidence of pose, pose label, estimate pose, turn classification (off), confidence threshold and turn video (off).

What to talk about. Stand at the edge of the picture and raise your arms. Does it still work? Google's Teachable Machine FAQ notes that pose models notice where you stand in the frame. Then let a sibling or a grown-up try it. The model learned one person's arms in one room; anyone different is a test of how good the examples were. That's the idea of bias, in a game.

Does the camera picture leave the computer?

- Training, in Teachable Machine: Google says it happens in the browser. Saving the project to Google Drive copies the samples (pictures of your child) into that Drive account, so for a first go, don't save.
- Uploading the model: publishes the trained model at a link, not the pictures.
- Recognising, in Scratch: TM2Scratch's README says that once a model is loaded, all recognition happens on the computer running the browser and "no video is sent to Google or other cloud servers." TMPose2Scratch's README doesn't cover privacy. In our own check on 29 October 2026, TM2Scratch ran Google's sample image model on a camera feed for 20 seconds and sent nothing except requests to download the model. With TMPose2Scratch open and its camera on, the page sent out nothing but page-view pings to Google Analytics, which both editor sites load. We didn't have a public pose model to test it with.

If you'd rather nothing is uploaded at all, ML2Scratch (in Stretch3, by the same developer) trains and recognises inside Scratch itself. TM2Scratch's README compares the two: ML2Scratch handles images only, and keeps models as files you download instead of links.

What age is it for?

The makers don't give one. Scratch's own parents' page says Scratch is "primarily designed for 8 to 16 year olds." Our suggestion: about 9 and up with a grown-up doing the upload step and pasting the link, and about 11 and up on their own. A younger child can still be the one jumping while a grown-up builds.

A word on Stretch3

Stretch3 is a modified Scratch 3 made by volunteers, not by the Scratch Foundation. Its extension library has TM2Scratch, TMPose2Scratch, ML2Scratch, hand, face and speech recognition, micro:bit and robot blocks. It also has ChatGPT2Scratch and GAI, which put generative AI chatbots inside a project. Those are a different thing from training a small model, and a grown-up should choose whether to use them. Our Scratch AI extensions guide covers what's AI in the regular Scratch editor.

6 game ideas for a pose model

The blocks are the ones from the first project. Start with two poses and add more once they work.

1. Jump when arms go up, the project above.
2. Duck. Crouch to make the sprite slide under an obstacle.
3. Left and right. Lean left or right to steer a character.
4. Simon says. The sprite shows a pose name and the player must strike it.
5. Freeze dance. The player must hold still when the music stops, with a "still" class trained as a pose.
6. Pose match. The sprite scores a point each time your pose matches the one on screen.

5 tips for a model that works

1. Vary the examples. Move about a little while recording each pose.
2. Use clearly different poses. Arms up and arms down beat two similar poses.
3. Train with the same lighting and camera spot you will play with.
4. Raise the confidence threshold if the sprite fires by mistake, and lower it if it never reacts.
5. Add a "neutral" class for standing still, so the model has somewhere to put poses you did not train.

Other ways to use Teachable Machine with Scratch

- RAISE Playground: MIT's Scratch-style editor has its own Teachable Machine extension ("use your Teachable Machine models in your Scratch project"), plus body, hand and face sensing.
- Machine Learning for Kids: its own training site and its own Scratch, no Teachable Machine needed.
- Scratch's Face Sensing: built into the regular editor, pre-trained, nothing to train or upload.

For tools sorted by age, and what equipment is worth buying, see machine learning for kids by age.

Where Peabody fits

Peabody isn't a coding site and doesn't teach machine learning. It's a reading and learning site with free stories at a child's level in the library and learning games whose questions are made and marked by code, not AI. A pose game is a lovely Friday project; Peabody is for the reading in between. Grown-ups thinking about the chatbot side of AI can take the quiz is your child ready for an AI chatbot?

Learn more elsewhere

- TMPose2Scratch on GitHub: the README with the six steps and pictures.
- TM2Scratch on GitHub: image and sound models, advanced blocks, troubleshooting and the privacy notes.
- Teachable Machine: where the models are made.

Questions parents ask

What is TMPose2Scratch?

TMPose2Scratch is a free, open-source Scratch 3 extension that connects Google's Teachable Machine to Scratch for pose recognition. A child trains a pose model in Teachable Machine, uploads it, pastes the link into the extension's model block, and then uses "when received pose label" blocks to make sprites react to body positions.

How do I open TMPose2Scratch?

Open champierre.github.io/tmpose2scratch in Chrome, click the Add Extension button at the bottom left, and choose TMPose2Scratch. It's also in Stretch3 at stretch3.github.io. It isn't in the regular Scratch editor at scratch.mit.edu.

What is the difference between TM2Scratch and TMPose2Scratch?

TM2Scratch loads Teachable Machine image and sound models; TMPose2Scratch loads pose models. Both are by the same developer, both are free and open source, and both run in modified versions of Scratch in Chrome. Stretch3 has both in its extension library.

Is TMPose2Scratch free, and does it need an account?

Yes, it's free and open source under the AGPL-3.0 licence, and neither the extension, Stretch3 nor Teachable Machine needs an account. The developer asks for donations to keep it going. You only need a Google account if you save a Teachable Machine project to Google Drive.

Does my child's camera video get sent anywhere?

Not for recognising, according to TM2Scratch's README, which says classification runs in the browser and no video goes to Google or other servers. Teachable Machine trains in the browser too. Uploading a model publishes the model at a link, not the pictures, and saving to Google Drive keeps the samples in that Drive.

Does TMPose2Scratch work on an iPad or Chromebook?

Not on an iPad: Teachable Machine doesn't run on iPads, as the TM2Scratch README notes, so the model can't be made there. The extensions need Chrome, which Chromebooks run, but we only tested on a laptop.

What are some project ideas for TMPose2Scratch?

Jump, duck, steer by leaning, Simon says, freeze dance and pose matching. The six ideas above all use the same "when received pose label" block.

Why does my pose model fire at the wrong time?

Usually the examples were too few or too alike, or the confidence threshold is too low. Record more varied examples, add a neutral class and raise the threshold.

Is TMPose2Scratch safe for children?

It needs a webcam, so a grown-up should sit with younger children. The TM2Scratch README says recognition runs in the browser and no video goes to Google or other cloud servers; TMPose2Scratch's README does not cover privacy, and both editors load Google Analytics.

Free at peabody.kids/blog/tmpose2scratch-and-tm2scratch-teachable-machine-in-scratch