

- Hint for inspiration/discussion: AI and facial recognition for educational setting etc.
- 3. <https://www.youtube.com/watch?v=zts4s2lbANo>
 - How facial recognition can be used to apply face filters or to match a user's face with faces in artworks (app "Art selfie" by Google)
- 4. https://www.teachermagazine.com/au_en/articles/ai-classroom-activity-facial-recognition
 - AI classroom activity: Facial recognition
 - 'Unplugged' facial recognition task
- 5. <https://www.kaspersky.com/resource-center/definitions/what-is-facial-recognition>
 - What is facial recognition?
 - How does facial recognition work?
 - How facial recognition is used
 - Examples of facial recognition technology
 - Advantages of face recognition
 - Disadvantages of face recognition
- 6. <https://www.nytimes.com/wirecutter/blog/how-facial-recognition-works/>
 - How facial recognition software works
 - A brief history of facial recognition
 - The arguments for and against facial recognition
 - The future of facial recognition and regulation
 - Privacy tips for using everyday things with facial recognition

Activity 2.2.2 - Using conditionals in Scratch Lab

Duration	90 minutes
Requirements	Having followed Activity 2.2.1 and some skills of programming
Hardware and Software tools used	<i>Required:</i> a computer with camera, and an Internet connection. Access to Scratch Lab (Face Sensing) https://lab.scratch.mit.edu/face/
Type of assessment	Class presentation / Group or individual work

Procedure (steps)

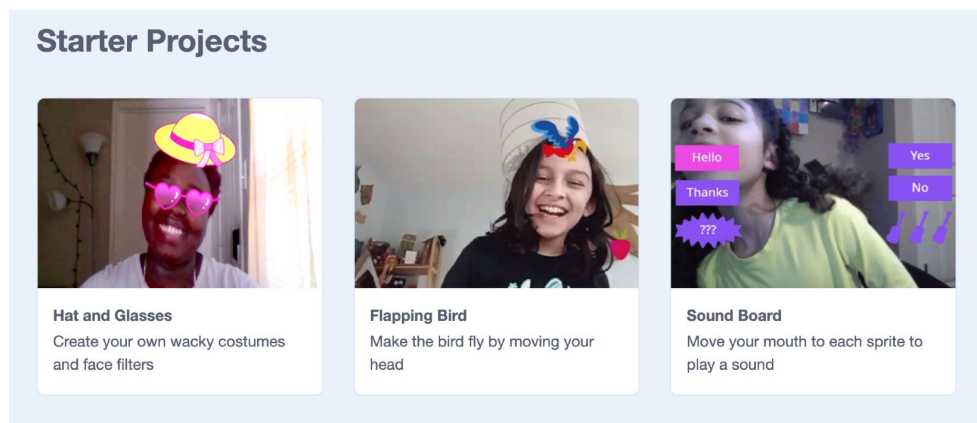
Advanced activity using Scratch Lab Face Sensing for creating a small game using the "when" and "if" components

Anticipatory Set

- Introduce students to Scratch Lab (previous work on Scratch language is recommended)
- It is possible also to view or use the demo material present in the tool (loading a project presented in the main page of Face Sensing)

Direct Instruction & Guided Practice

- Coding for facial recognition
 - Access the template “Flapping Bird” from <https://lab.scratch.mit.edu/face/>



- This program creates a simple game that use when and if statements
- Let students experiment with different components for placing images on different parts of their faces (nose, forehead, etc.) and testing how the face recognition works (test if the system recognise the face when a part of the face is hidden or occluded with a book or another object)

Independent Practice

- Provide some challenges to the students, E.g. :
 - Add a sound if the head touch the border of the camera area
 - Add a message if no faces are recognised in front of the camera
 - Introduce a second type of elements (e.g. a “bomb”) that the parrot should not touch

It is also possible to practice with Scratch to modify the program discussed in “Is it AI or not” activity. <https://scratch.mit.edu/projects/371119352/>

Other resources to use Scratch for creating digital games or interactive programs that simulate real-world application of AI systems can be found here <https://machinelearningforkids.co.uk/?lang=en%23!worksheets#!worksheets>

Resources for combining Scratch with Teachable Machine using a script in PictoBox. The example in the link presents a project for creating a Scratch program that can recognise if the person in front of the webcam is wearing a face mask or not

<https://thetempedia.com/tutorials/making-a-mask-identifier-machine-learning-in-pictoblox/>

Assessment

At the end of each activity (lesson) during the second module, the teachers can ask for a personal deeper reflection on what students have learned thanks to the activity done. The reflection can be made in written or oral form, depending on the teacher's preference. Providing this assessment immediately after the end of a lesson will help students to remember the activity just carried out, without having to wait for the end of the module.

At the end of the whole second module, the teachers will make a brief summary of the activities and the main concepts addressed during its lessons, in order to help the students to quickly review the contents. After a room for clarification questions, students can perform a multiple choices question test and they will answer a short open question. The open question aims to let students express a personal thought, as well as a creative idea, concerned with the contents of the second module, while the multiple choices help teachers and students to have a verified overview of the topics learned. It is important that this evaluation is not judgmental but, on the contrary, gives feedback. It should not be an assessment of learning, but an assessment for learning that is: (i) integrated into the learning process, (ii) focused on understanding, (iii) explicit in purpose, (iv) positive towards the error, considered as a point of reflection; (v) a dialogue between student and professor or educator.

DigComp 2.2. area	Definition	Assessment Indicators	Details
5.2 IDENTIFYING NEEDS AND TECHNOLOGICAL RESPONSES	<i>Aware that many AI systems require a combination of AI techniques to function in real-world scenarios (e.g) a virtual agent might use natural language to process instructions and reasoning in uncertainty to make recommendations)</i>	How can we set an AI? (e.g. activity of the module)	The student shows that he has understood the process of training an AI.

3.2 INTEGRATING AND RE-ELABORATING DIGITAL CONTENT	<i>Aware that AI system can help the user to edit and process digital content (e.g. some photo editing software uses AI to automatically age face while some text applications use AI to suggest words, sentence and paragraph)</i>	In which daily activity (out of the school) you, or your family, would you use the AI tools that you learned to use in the module?	The student gives at least one example
4.1 (only advanced) PROTECTING DEVICES	<i>Weighs the benefits and risks of using biometric identification techniques (e.g. fingerprint, face images) as they can affect safety in unintended ways. If biometric information is leaked or hacked, it becomes compromised and can lead to identify fraud.</i>	What are the risks of the AI's power to use biometric identification techniques?	The student is able to explain at least one context/examples in which AI can generate security problems.
5.4 IDENTIFYING DIGITAL COMPETENCE GAPS	<i>Aware that some AI systems have been designed to support teaching and training humans (e.g. carrying out tasks and assignments in education, at work or doing sports)</i>	Based on the experiments carried out throughout the module, how AI could help you in your work in the classroom?	The student gives at least one example.

