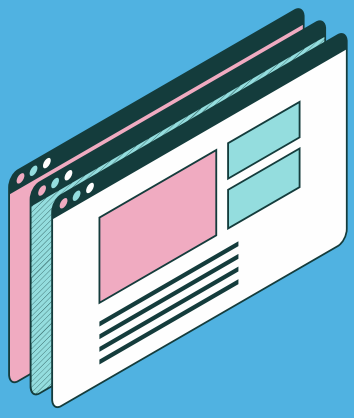
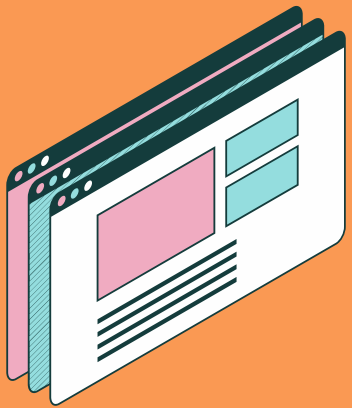
Erasmus+

JUGEND für Europa

DIGITAL TOOLBOX

Useful Info and Websites (not only) for young people who want to learn more about Coding and Articifial Intelligence





THE PROJECT

This publication is the result of the Erasmus+ Youth Exchange "ECODING - New Technologies For Environment, Employability And Civil Activism". It was funded by the German National Agency. The project was implemented 03.-10. July 2022 in Rustavi/Georgia.

THE PARTNERS

The applicant organisation was Train of Hope e.V. from Dortmund/Germany: **https://trainofhope-do.de/**

The hosting organisation was Youth Association DRONI from Tbilisi/Georgia: **https://droni.org/**

The partner organisations were:

Youth Initiative Centre from Gyumri/Armenia:
https://yic.am/en/

Kooperativet Fjallet from Gothenburg/Sweden:
http://www.fjallet.org/

THE METHODS

During this Youth Exchange young people from Armenia, Germany, Georgia and Sweden met and exchanged on the level of digitalisation in their own country (are new technologies part of school curriculum; what about network coverage in rural areas and the price for internet, are public services accessible online, etc.).
We had workshops with a Sensebox and learnt how to programme a small video game. During a study visit to the Tech Agency in Tbilisi we saw 3d-Printers and CNC-Cutters and enjoyed a workshop about Articial Intelligence.
We explored also environmental problems in the participating countries and how new technologies could be used to tackle them.
On the following pages we will share some useful tools, videos and websites for everybody who is interested in or wants to learn about Coding, Machine Learning and Artificial Intelligence.

Websites for Learning...

...Coding

https://code.org/

"Code.org® is an education innovation nonprofit dedicated to the vision that every student in every school has the opportunity to learn computer science as part of their core K-12 education."

...Java Script

https://p5js.org/

"p5.js is a JavaScript library for creative coding, with a focus on making coding accessible and inclusive! p5.js is free and open-source because we believe software, and the tools to learn it, should be accessible to everyone."

...Coding

https://processing.org/

"Processing is a flexible software sketchbook and a language for learning how to code within the context of the visual arts."

...3D-Modelling

https://www.tinkercad.com/

"Tinkercad is a free web app for 3D design, electronics, and coding, trusted by over 50 million people around the world."

One of our Swedish participants implemented a workshop about Sensebox. It's a device, produced by the start-up re:edu and can be employed for multiple purposes.

re:edu

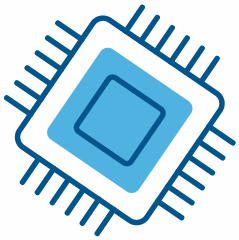
re:edu is a young start-up (spin-off of the Institute for Geoinformatics at the University of Münster) that offers solutions for education, research, sustainability and participation – digital and open – for all people.

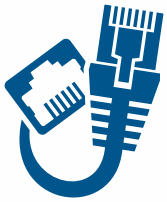
https://reedu.de/

senseBox

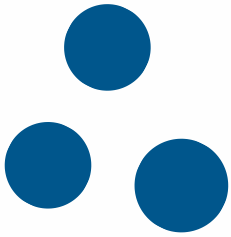
The senseBox was developed for use in digital education, for Citizen Science and for professional environmental data collection. The core of every senseBox is the easy-to-program senseBox mini-computer to which various sensors are connected.
The Sensebox is an environmental monitoring station. With sensors, microcontrollers and basic components you can measure temperature, humidity air-pressure, UV-intensity, dust, wind, etc.
The appropriate program code is available for free (programming knowledge is not required).

https://sensebox.de/en/





To buy a senseBox can be expensive, but it could be an interesting investment for schools, youth clubs or NGOs who are working with young people, activists and also adults who want to make environmental research or learn about the possiblities of connecting new technologies with tackeling environmental problems.



SCRATCH – Building Animations, Movies and Video Games

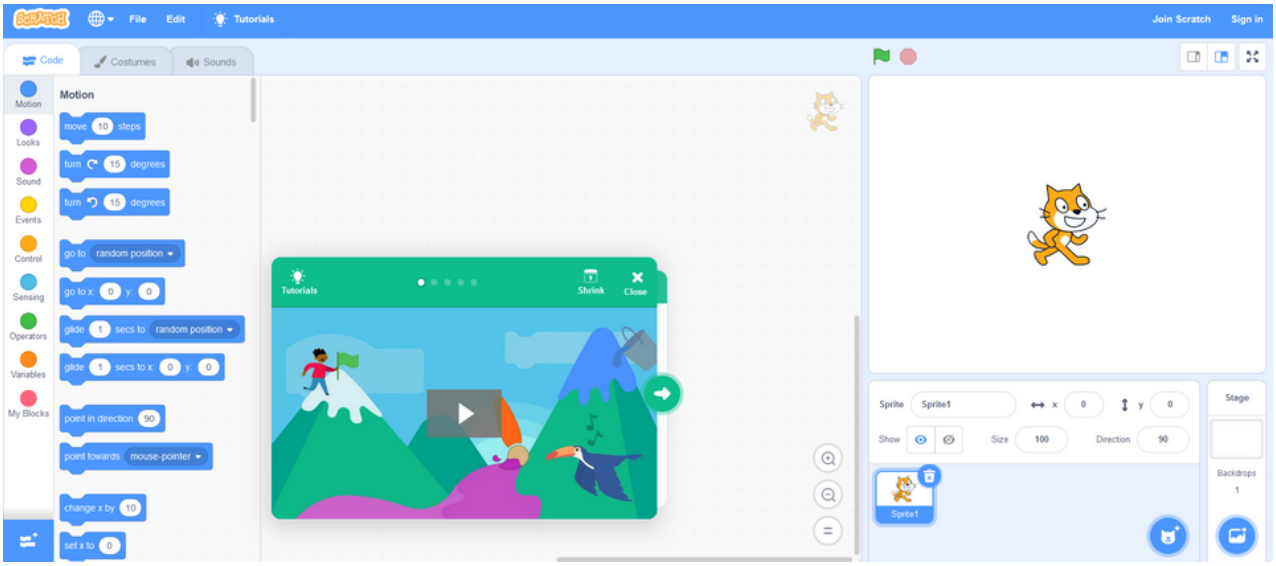
On the Scratch website you can discover how to create animations, videos and even video games. It has a simple visual interface that allows to create your content by drag and drop.

https://scratch.mit.edu/

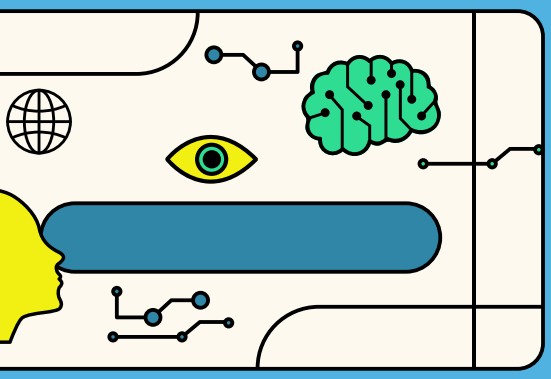
Scratch is designed, developed, and moderated by the Scratch Foundation, a nonprofit organization:

https://www.scratchfoundation.org

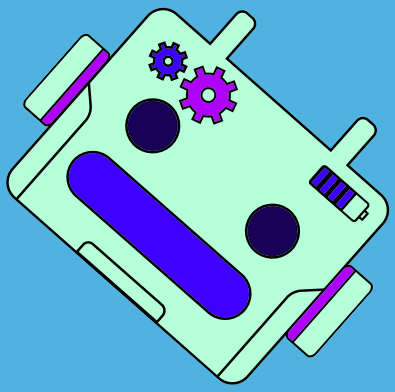
"Scratch promotes computational thinking and problem solving skills; creative teaching and learning; self-expression and collaboration; and equity in computing. Scratch is free and available in more than 70 languages."

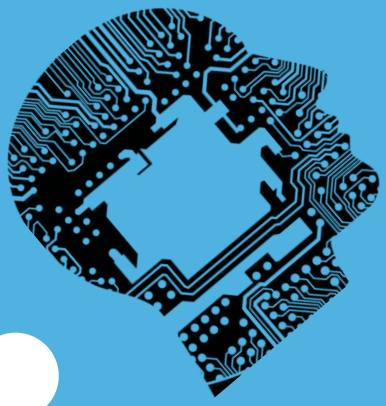


This can be a great start for anyone who wants to get an insight how the backend of animations, videos and games looks like. It is not necessary to have profund knowledge of coding and programming languages. You can intuitively create your desired content. Besides, there are also tutorials available that will help you with the first steps.



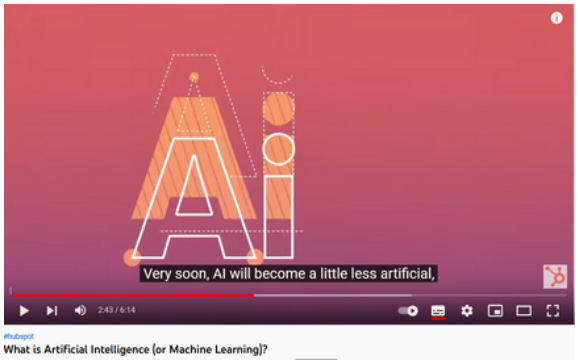
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING





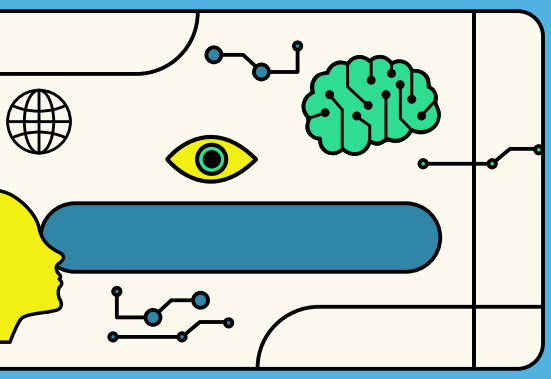
What is actually AI and what means Machine Learning? During the Youth Exchange we had an excursion to the FabLab at the "Georgian Innovation and Technology Agency" (GITA).
https://gita.gov.ge/en
We were shown 3D printers, CNC cutters and the informed about the work the FabLab does and how start-ups are supported. During a workshop we learnt a lot about AI and machine Learning.

These videos give a good introduction:
https://www.youtube.com/watch?v=mJeNghZXtMo&t=2s



If you want to understand how machines are learning, then you should check this video:
https://www.youtube.com/watch?v=R9OHn5ZF4Uo

And here is an example how fast and autonomous AI learns.
https://www.youtube.com/watch?v=Lu56xVlZ40M&list=LL&index=3



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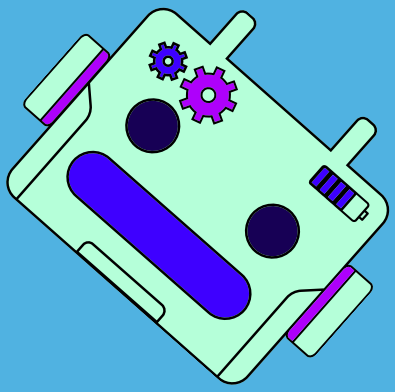
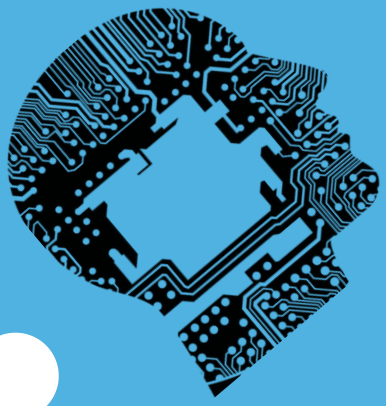
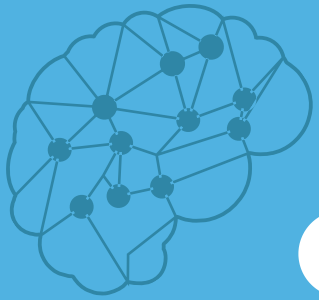


The resarch and deployment company OpenAI is working on developing new AI solutions. Main investors are Elon Musk and Microsoft. **https://openai.com/**
One example for their work is DALL·E 2 that can create realistic images based on written description by using databases of real images as input. See for yourself: **https://openai.com/dall-e-2/**

Facial Recognition is used in public places, by our devices and law enforcement. In China the concept was even brought to schools as you can see in the follfowing video: **https://www.youtube.com/watch?v=k39oR2fLFPg**



If you want to understand how self-driving cars are working, this video released by Tesla will answer some of your questions: **https://www.youtube.com/watch?v=zRnSmw1i_DQ**



What do you think about these developments? Do you see the benefits here for mankind? What kind of disadavantages come to your mind after watching these videos?

ENVIRONMENT AND NEW TECHNOLOGIES

New technologies can be used for tackling pressing environmental or ecological issues: plastic made out of plants; electricity produced by a special kind of glass; alternative sources to produce oil;... a lot is possible with the adequate equipment, an open mind and a good idea.

Here you can find some examples for what is possible if you connect new technologies with attempts to do something good and sustainable for the planet:

- https://ecofriend.org/14-ways-technology-can-help-the-environment/
- https://www.livescience.com/11334-top-10-emerging-environmental-technologies.html

If you have no idea how to get active yourself, we have a recommendation for you. Instead of using Google or a similar search engine, you can try ECOSIA.

https://www.ecosia.org/

ECOSIA is using the incomce of search ads to plant trees on different sites all over the planet. Besides, it is respecting your privacy and not storing and selling your data. How it works? Check here: https://info.ecosia.org/what

We hope this small Toolkit could give you some inspiration!

Maybe you want to use some of the websites to take your first coding steps? Or you want to share and discuss the news about AI with your friends? Or you have already an idea how to address an environmental challenge with new technologies?

For questions or input feel free to contact the applicant organisation:

http://Kontakt@trainofhope-do.de/

We want to thank all partners and "Jugend für Europa" - the German National Agency of the Erasmus+ Programme 2021-27 - for the support and for making this project possible.

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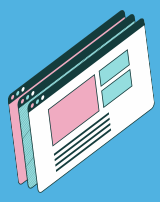

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