

AI Programming in Snap! Updates

A complete, much too detailed list of updates to the [eCraft2Learn AI programming library](#) can be found [here on GitHub](#). This documents the highlights since the beginning of March 2020.

March 2023

Created a sample project for predicting the ratings of the output of a text-to-image generator. Created a sample project based on Snap!'s animal game. Using LLMs can either play the questioner or answerer roles. Added a block for using ChatGPT (gpt-3.5-turbo) and a block for obtaining GPT-3 embeddings.

February 2023

Added a KNN version of the confidence project. Updated and enhanced blocks for creating models and hyperparameter search.

January 2023

Added a block that reports any layer in a model.

December 2022

Added a block to use [Stable Diffusion 2.0 to generate costumes](#). Made major improvements to the [illustrated story generator project](#).

November 2022

Added a block using [DALI-2](#) to [generate Snap! costumes from English descriptions](#).

October 2022

Added sample projects using language models that include [generating virtual debates](#), [conversations between simulated people](#) (optionally including a user), [generating turtle commands from English instructions](#), and [playing Tic Tac Toe](#).

September 2022

Added a sample project for [generating illustrated stories](#). Added a [blog post](#) about using it to generate 15 illustrated stories.

July and August 2022

Updated and improved several sample projects and exercises.

June 2022

Updated the pose and segmentation blocks and added new blocks for [hand pose and face mesh](#). Added a [demo project of 3D face landmarks](#).

May 2022

Complete rewrite of [the sample project for using the neural network blocks to make predictions with real-world data](#).

April 2022

Created [an intelligent search project](#) for searching the guide and the Snap! Manual. Optionally using voice.

March 2022

Added a [library](#) for creating, manipulating, and querying K Nearest Neighbors (KNN) models.

February 2022

Added a [block for communicating with GPT-3](#) and a [demo project to hold a conversation](#).

January 2022

Created a [Progressive Web App](#) so most of the resources can run offline. Added core libraries and projects to Snap!'s libraries. Also created a Progressive Web App for the [AI Programming Guide](#).

December 2021

Upgraded to Snap! 7.0 with a new interface to JavaScript so permissions are not needed. Created new block categories for the AI blocks.

June through November 2021

Over a hundred small improvements and fixes.

January 2021

Several small improvements and fixes.

December 2020

Added [a sample project for searching for word analogies](#).

July 2020

Added [blocks for loading and using models created in Google's Teachable Machine](#). Works for both images and sounds but not yet poses.

June 2020

Added [object detection blocks](#). Can recognise up to 100 objects in 80 different categories. Computes bounding boxes for each detected object.

May 2020

Added [segmentation blocks](#) and a sample project using it as an [augmented reality game of popping balloons](#). Can label pixels as being part of up to 24 different body parts.

April 2020

Added interface to [BERT](#) for question answering from a passage. Created [a sample project](#) that answers questions about Snap! based upon the Wikipedia article about Snap!.

Created [a sample project](#) using deep learning and the Universal Sentence Encoder to answer questions about the Snap! AI library. In the process the block for searching for good hyperparameters for a deep learning model was enhanced.

Added a sample project called [dont touch your face](#). It uses PoseNet to track your hands and warn you if they get near your face.

March 2020

Sentence encodings

Added a new block “features of sentence ...” that uses Google’s Universal Sentence Encoder. We illustrate its use by showing that “How old are you?” is much closer to “What is your age?” than to “How are you?” (all of its words occur in “How old are you?”). Using sentence embeddings we then trained a deep learning model to predict the degree to which a sentence indicates confidence (or lack thereof). All this has been integrated into the AI programming guides. Unlike the “features of word ...” block currently this is [limited to English only](#).

Running the library on phones

In principle everything should work on Chrome on a smartphone. However, testing shows it often [causes Chrome to crash and yet it sometimes will work for a while](#)

New sensors

Created [new blocks for accessing sensors](#) (of phone or laptop).

Bigtrak Rover

Playing with a [rover](#) and my Android phone I managed to get [Snap! to control the rover](#). When we tried to [combine it with sensors](#) it triggered the Chrome crash problem (see above).