

animAIté



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Dataset

Giphy is an online database and search engine that allows users to search for and share short looping videos with no sound, that resemble animated GIF files. Categories of GIFs range from entertainment, to memes, to artistic imagery and animations.

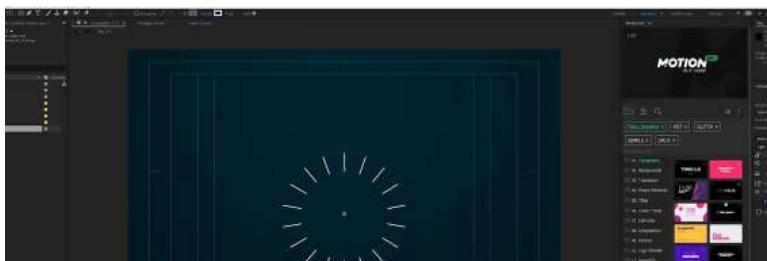
Given the wide range of image styles available in the dataset, **animAite** uses only simple motion graphics to train its model. This produces a more controlled output that can have stylistic consistency amongst all final products.



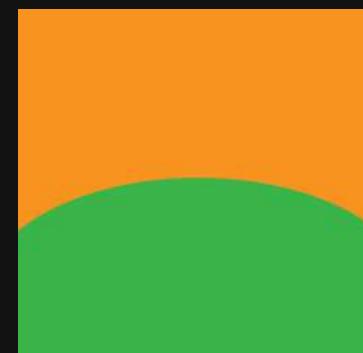
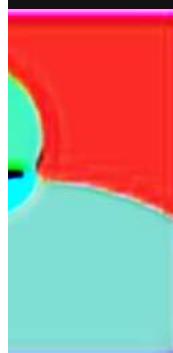
Goals

In order to create simple motion graphics like the images to the right, artists must draw frame by frame in order to develop a smooth animation. Hundred of drawings could go into a single ten-second GIF. Many artists use software like Adobe After Affects, drawing geometric patterns and dictating the paths that moving shapes will follow.

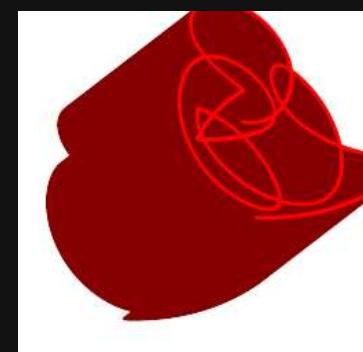
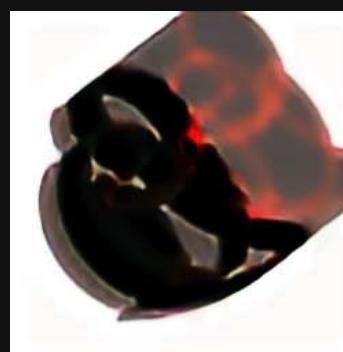
animAite aims to simplify the process by which artists and animators can work. Instead of drawing all the frames that compose an animation, artists can input the beginning frame and ending frame of their animation. Our machine learning model is able to interpolate a series of frames between the inputs after training on tens of thousands of motion graphic GIFs from GIPHY. **animAite** performs as a creative tool to make animation easier and can produce unexpected results.



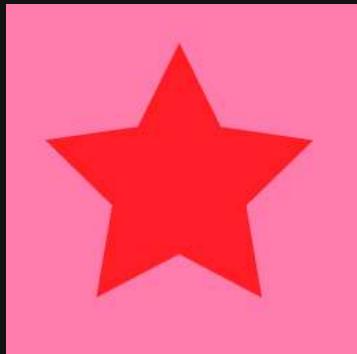
Input



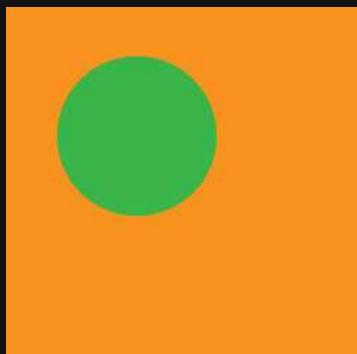
Input



Input



Input



Input



Input



The Giphy interface showing search results for "motion graphics". The results include various motion graphics and stickers related to the theme. The interface features a navigation bar with categories like Reactions, Entertainment, Sports, Stickers, Artists, Upload, Create, Log In, and a search bar with the query "motion graphics". Below the search bar, there are filters for #motion, #graphics, #mograph, and #after effects. The results are sorted by Relevant and Newest. The images in the grid include a yellow blob on a pink background, a colorful swirling sphere, a cat wearing large glasses, a person on a skateboard, a hand holding a knife, a person walking, a fruit collage, a girl with blue hair, and a starburst effect.

GIPHY API

GIPHY has an API available for developers to use. The API is able to scrape any number of GIFs from GIPHY that is specified. animAIté utilized 20,000 GIFs in order to train. To keep the final imagery consistent a set of tags was targeted by the API, which excluded certain tags that may skew results. Photorealistic images may train the model incorrectly, so tags like animals, babies, trippy images, stop motions, and movie titles were discluded from the training set.



Animals: NO Trippy: NO Paris Hilton: NO Simple: YES

Precedent Model

The model that we based animAIté on addresses the issue of generating a new image from two existing images. A middle frame is created from two frames of a video through interpolation or the subsequent frame through extrapolation. This model combines the strengths of traditional optical-flow-based solutions with those of generative convolutional neural networks into a technique that the authors call Deep Voxel Flow. The model is unsupervised, and virtually any video can be used to train the deep neural network. To perform tasks such as smoothing out a video, it divides the video into groups of two frames and interpolates the frame in between, effectively increasing the frame rate.



animAIté Model Architecture

Since the original model was made for applications such as smoothing out video frames, we had to adapt it to be able to use it with gifs. Instead of putting in a video and extrapolating the frames in between groups of two frames, we used gifs scraped from GIPHY and took individual frames from each gif. Using the two input images to interpolate a generated frame, the model creates more frames by feeding in the generated image as an input along with one of the original frames, and so on. The final product is a gif created from the generated frames sandwiched between the two original images.

