Title: Using AI to Explore Common Realities: A Stable Diffusion Model for Image Variation Analysis

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Out of series of images – one with stirring the pot

In this study, a stable diffusion pipeline in machine learning is used to investigate the representation as well as analysis of everyday mundane tasks, with an emphasis on cooking in the kitchen. A series of generated images is produced to see how a stable diffusion model interprets and analyses such routine actions by using a single input source image and image variation approaches.

[Video Link: https://vimeo.com/manage/videos/943273430/privacy]

Introduction: Utilising the lens of image variation, we explore the area of artificial intelligence in this project and its ability to understand and assess everyday actions. We study the everyday activity of cooking in the kitchen with the goal of revealing the nuances and details caught by an ongoing diffusion pipeline. We aim to shed light on how machine learning understands and reflects common human experiences by utilising algorithms for learning.

Idea and Background Study:

This project was inspired by an interest in the ways that machines perceive and produce embodied movement. I seek to repurpose the image processing idea known as the steady diffusion model for the goal of interpreting movement data. This model provides a special framework for everyday sequences, generally by diffusing picture overlays to create abstract distortions. I want to investigate how the machine interprets and translates movement cues into expressive choreography.

This project is also in line with the history of computational arts, which is the fusion of creativity and technology. It expands on the work of scholars and artists who have investigated how algorithms and machine learning might be used to create art. Additionally, it adds to the current conversation about AI's place in artistic production by emphasizing the possibility of human-machine collaboration.

Technical Execution:

Using a steady diffusion pipeline for image variation processing is one of the project's primary technological components, amongst other things. First, an image from a single input source showing a person preparing food is selected. This representation is the starting point for producing modifications by using stable diffusion methods. For picture processing and visualisation, we utilise the Python Imaging Library (PIL), which makes it easier to create and plot image sequences. Ensuring the integrity of generated variations and optimising parameters are given great consideration throughout the implementation phase.
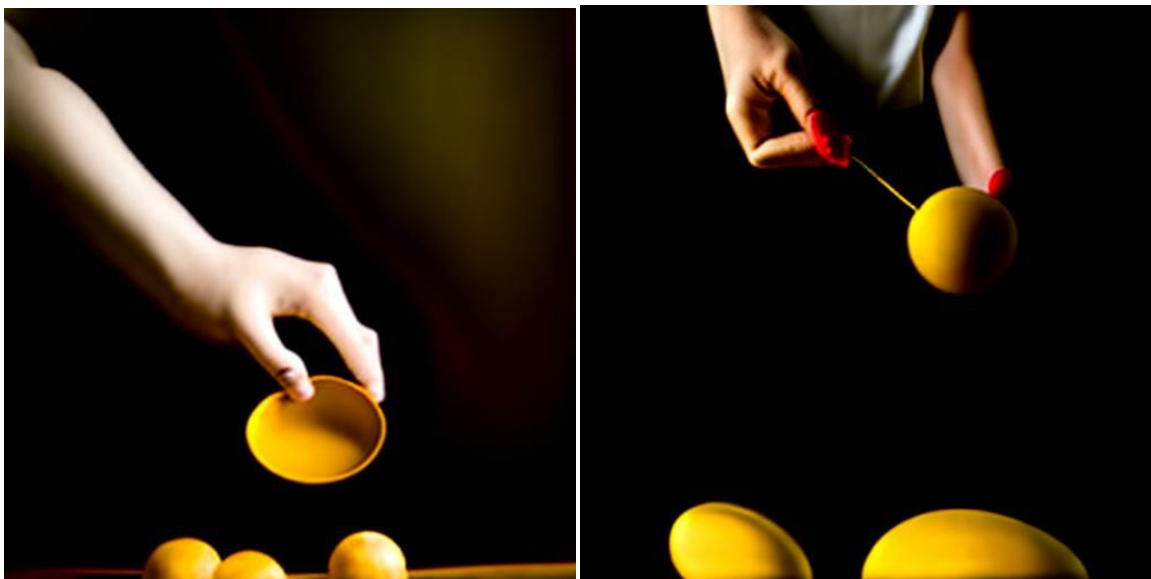
Using image variation pipeline – one with collecting items

Introspection and Prospective Growth:

Thoughts and Future Development: Looking back on the project, we see that it was successful in showcasing the possibilities of stable diffusion pipelines for the analysis of everyday tasks. The produced visual sequences provide fascinating new perspectives on how machine learning understands and depicts everyday human events. In subsequent rounds, we acknowledge the necessity for additional refining and research. Enhancing the accuracy of image variations can be achieved by improving the stability and consistency of diffusion pipelines. Real-world data and user input may also improve the analysis and increase the range of possible uses. All things considered, this initiative acts as a starting point for more research into the nexus between machine learning and human experiences.

References

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