Project ideation

Idea – Adding advertisements to video using unpaired image-to-image translation and cycle-consistent adversarial networks

Using a cycle-consistent adversarial network I plan to deepfake any product into any video for the purpose of advertising. This can also be used in reverse to remove a product from a video. I plan to swap Pepsi cans with coke cans (possibly in the Pepsi ad) to showcase what is possible with the model. The long-term goal of this project includes merging with a shape transform model, however the focus of the dissertation will be image translation due to the time constraint.

I am confident that I am going to pursue this idea for my dissertation. I have already conducted research and began to work on the foundations over the summer break.

Techniques:

* Machine learning
* Image to image translation
* Generative networks
* CycleGAN

I chose this because I wanted a unique project and this specific use of image translation has not yet been explored. Generative networks are also fairly uncharted in terms of their uses and potential.

For some more detailed notes visit - https://deepads.ai/blog/

Interest in GANs - image generation/transform

Idea - Advertising in videos with unpaired image-to-image translation using cycle-consistent adversarial networks.

Using a cycle-consistent adversarial network (CycleGAN) I plan to deepfake products into a separate video for the purpose of advertising. This can also be used in reverse to remove a product from a video/image. As an example of the models potential and what it will be used for, I plan to swap Pepsi cans with coke cans in a short video clip. The long-term goal of this project includes merging with a shape transform model, however the focus of the dissertation will be image translation due to the time constraint.

I have completed Andrew Ngs Coursera specialization on machine learning and neural networks over the summer break from which I have gained a solid foundation of the concepts involved and developed a significant interest in machine learning. Generative Adversarial Networks stand out to me as they have huge potential and are still rather unexplored in terms of their uses.

I began working on this project over summer and started building the foundations of the model, as well as research related to it. I have created datasets that have been saved as numpy arrays of correct shape, converted to TensorFlow Dataset format and pre-processed ready for use in the model, although I need to take some more time to compile more data throughout the year for the best possible results. I know how the model works and the stages involved in building it but guidance on some of the technical details will go a long way to the success of my dissertation.

I also have a connection at GraphCore who may be able to provide me access to one of their IPUs which would be a fantastic opportunity and a great learning experience for everyone involved.

Some of my research and notes are already on my blog that id urge you to visit - <https://deepads.ai/blog/>

Thank you for your consideration.

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