Deep inbetweening

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Context: This Masters thesis will take place in the IMAGINE team at INRIA in Montbonnot. It is offered to Masters students interested and trained in machine learning and animation.

Objectives:

Inbetweening is the process of creating intermediate drawings between keyframes in the traditional 2D animation pipeline. It is a difficult problem in general, which has received only limited solutions in restricted cases [1]. Recently, deep learning methods have been proposed for interpolating [2] or predicting [3] video frames in movies, and they have been adapted to the case of generating drawings in the anime style [4]. One drawback of those methods is that they cannot easily be controlled by artists.

In this internship, we would like to analyze the capabilities of such networks on the task of inbetweening short animation cycles of natural phenomena, which can easily be simulated. The task will be to predict intermediate frames from selected hand-drawn keyframes, and to propose novel network architectures allowing artists to control the inbetweening process by redrawing intermediate frames interactively.

If successful, the master’s thesis is expected to lead to a PhD thesis on deep inbetweening of character animation.

References: