

miHoYo

In miHoYo (<http://www.mihayo.com/>), we have great artists in our company, and we are trying to use technologies to free them from the tedious works so they can focus on creation.

To do that, we are looking for talented and motivated research interns in the areas of computer graphics, deep learning, computer vision and human computer interaction to work on the following research projects. We are also open to any other projects that could help improve the game/CG assets creation.

If you are interested in internships or external collaborations with us, please contact us via junxnui@gmail.com (Jun Xing).

Projects examples:

1. *hairAnimBrush: interactive hair animation*

The hair animation should be stylized, physically-plausible, and easy to control via simple gestures. Physical simulation can produce realistic animations, but can be hard to control and stylize. The goal is to design a sketch-based system to make animation authoring easy, while exhibiting the time-varying dynamics of simulation.

2. *capToCar: motion transfer from capture to cartoon*

Due to the different body scales and motion styles, transferring the motion from a real human (e.g. via motion capture) to a cartoon character could be a challenging problem. The goal is transfer the high-level captured motion, while maintaining the style of the target character. Deep neural network has shown to be powerful in high-level feature extraction, merging, and transfer.

3. *pix2Anim: transfer the style of image(s) to animation*

Image stylization is a popular topic in deep learning and lots of amazing results have been achieved. The goal is to transfer the desired style to an animation sequence. In particular, the artists could specify the style of one or a few frames via manual drawing, and the system automatically propagates the style to the rest frames while maintaining temporal coherence.

4. *smartWalk: smart walking animation synthesis*

In games, walking is one of the most important animation asset. However, the walking animations are usually predefined and limited in expression. The goal is to make the walking stylized and adaptive to/aware of the environment, e.g. different poses under different emotions.

5. *smartAnim: smart editing of animation sequence*

Keyframing the animation sequence is a tedious task that requires experienced artists. Usually, the artists tune the shape and pose of the objects (e.g. cloth, hair, body) by rigging the bones, or even more detailed editing on the vertices, edges and faces, frame-by-frame. The goal is to propagate the editing from local to global (e.g. edit one finger, and the whole hand/arm/body is automatically adjusted), and from one frame to the whole animation sequence.

6. *fakeVoice: synthesize the audio of expert actor by anyone*

Dubbing the character voice using human actors is an expensive and time-consuming task, and the same actor may not be always available. The goal is to synthesize the voice of an expert actor A, driven by the audio and emotion of another person B, given a large paired audio dataset of A and B.

7. *terrainBrush: interactive terrain creation in game world*

Designing the terrain of a large area is a tedious task, which includes the numerous layout of trees, grasses and stones, and the terrain altitude and texture adjustment. The goal is to design a terrain brush that could allow the artists to easily create the desired terrain at different scales, with the detailed terrain geometry/texture and object layout automatically generated while being aware of the environment.