

Drag Your GAN: Interactive Point-based Manipulation on the Generative Image Manifold

What is the problem?

- ❑ Lack of **precise control** over specific image attributes (pose, shape, etc.) in GAN-generated images.
- ❑ Existing methods require **manual annotations** or **3D models**, limiting their flexibility.
- ❑ Users cannot easily perform **interactive, fine-grained manipulation** of image details.

What has been done earlier?

- ❑ Early methods used **3D models** or **manual annotations** to guide image manipulation.
- ❑ Approaches like **GANWarping** enabled editing but struggled with maintaining image realism.
- ❑ Some methods introduced **latent space exploration**, but controls were coarse and not intuitive.

What are the remaining challenges? What novel solution proposed by the authors to solve the problem?

- ❑ **Multiple point handling:** It's difficult to move more than one point at a time, which limits how much you can edit simultaneously.
- ❑ **Accuracy issues:** Existing tools don't guarantee that the point you want to move will precisely reach the target.
- ❑ **Maintaining realism:** When making changes to an image, it's hard to keep the rest of the image realistic, especially for hidden parts.
- ❑ **Point-based control with DragGAN:** Users can now click and drag points on an image to the exact spot they want, with smooth and precise control.
- ❑ **Point tracking:** DragGAN tracks multiple points accurately, ensuring that the system follows your changes correctly.
- ❑ **Handles occluded content:** DragGAN can generate hidden parts of an image that weren't visible before, making the image look natural even after big changes.