

Peer Review

# Review of: "MotionCharacter: Identity-Preserving and Motion Controllable Human Video Generation"

Elakkiya R<sup>1</sup>

1. Birla Institute of Technology and Science Pilani, Pilāni, India

Strengths:

- The paper introduces a dual-network framework to achieve identity preservation and motion control at the same time. This is a good attempt to address an important gap in human video generation. Balancing identity and motion fidelity has useful applications like virtual avatars and motion synthesis.
- The study provides a wide evaluation, including both qualitative results and metrics like identity similarity and motion fidelity.
- The use of motion-capture data and focusing on motion-controllable generation is an attempt to work on real-world scenarios.
- The study connects identity preservation, motion control, and generative video synthesis. This could open new applications in areas like healthcare, entertainment, and AI-based tools for accessibility.

Suggestions for Improvements:

- The formulas in Section 3 have typographical errors. For instance, the equation for identity preservation loss uses inconsistent subscripts, making it unclear and hard to understand. Such mistakes affect the clarity and reproducibility of the method.
- The claim, "Our structure balances identity and motion fidelity" (Section 3.4), is not explained in detail. It's unclear how the two networks work together. A flow diagram or better mathematical explanations would help.

- The dataset description (Section 4.1) mentions diverse subjects and motions, but it does not give specific details about the size, variety, or challenges like occlusions or noise. This makes it hard to judge how well the method generalises.
- Similarly, "*We detail the composition and annotation process in Sec. 3.4.*" was mentioned, but upon reviewing Section 3.4, there is no detailed description of the composition and annotation process provided.
- The paper does not compare its results with more advanced techniques like Transformer-based video generation frameworks or diffusion models, which are leading in this area.
- The results in Table 1 show improvements in identity similarity and motion fidelity, but they don't include statistical tests or confidence intervals. This makes the validation less reliable.

## **Declarations**

**Potential competing interests:** No potential competing interests to declare.