

Peer Review

Review of: "Synthetic Data Generation of Body Motion Data by Neural Gas Network for Emotion Recognition"

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This study presents an interesting and potentially valuable application of the Neural Gas Network (NGN) for synthetic body motion generation in emotion recognition; however, several weaknesses reduce its scientific strength and clarity. First, the dataset size is relatively small (only 32 original samples from a single actor), which limits generalizability and raises concerns about model overfitting and population bias; including multi-subject datasets and cross-dataset validation would significantly strengthen reliability. Second, although numerous evaluation metrics are reported, statistical significance testing and confidence intervals are missing, making it difficult to confirm whether NGN improvements are truly meaningful compared to GAN, VAE, or diffusion models. Third, the methodology section lacks sufficient implementation reproducibility, such as a clearer parameter selection rationale, ablation studies, and hyperparameter optimization details. Additionally, the discussion occasionally overstates performance claims without critical comparison to recent state-of-the-art diffusion or transformer-based motion synthesis models. The manuscript is also overly lengthy with redundant literature explanations that reduce focus on novel contributions; condensing the background and emphasizing experimental novelty would improve readability. Finally, ethical considerations and dataset limitations require deeper discussion, particularly regarding single-actor motion bias and emotional labeling validity. Strengthening experimental validation, expanding datasets, providing statistical analysis, improving reproducibility transparency, and refining the discussion would substantially enhance the manuscript's scientific impact and publication potential.

Declarations

Potential competing interests: No potential competing interests to declare.