Text-Based Human Motion Generation

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Introduction

- Human motion generation involves understanding human behavior and creating realistic movements using data driven techniques
- Deep learning models have significantly advanced the field by enabling the generation of human motions that closely mimic real-life behaviors.

Figure 1: text to motion

Motivation

- Brings characters to life with realistic motions.
- Speeds up content creation, boosting creativity.
- creative storytelling in industries like gaming, animation, and virtual reality.

Figure 2: Virtual reality

Literature Survey

"Character Motion Synthesis Based on Deep Learning" (AMCCE- 2023)

Description: This paper presents a survey of several existing deep learning methods on character motion.One future approach for motion synthesis based on deep learning is to try combining different networks and learning strategies synthesis.

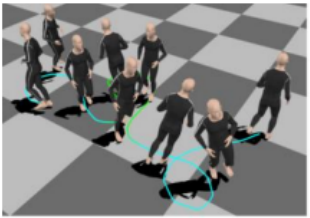

Figure 3: Convolutional Neural Networks

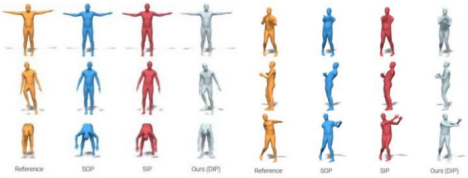

Figure 4: GAN

Literature Survey

"Generating Diverse and Natural 3D Human Motions from Text" (CVPR-2022)

Description:it takes text descriptions of human motions as input and generates realistic 3D human movements based on that text.

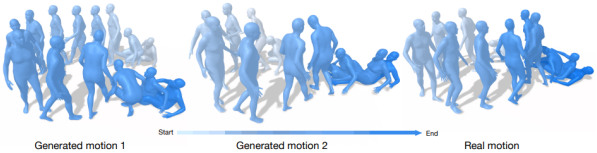

Figure 5: Text based motion

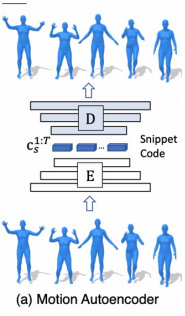

Figure 6: encoder

Problem Statement and Objectives

Problem Statement

Developing a system that generates realistic 3D human motion from text with smooth and contextually accurate transitions.

Objectives

- To analyze text and generate 3D human motion that align with the provided text.
- To make the generated movements look realistic and natural, replicating how real people move.
- To develop a versatile system capable of being applied across multiple domains.
- To maintain temporal consistency in generated motion.

References

[1] Generating Diverse and Natural 3D Human Motions from Text Chuan Guo, Shihao Zou, Xinxin Zuo,Sen Wang, Wei Ji, Xingyu Li, Li Cheng, University of Alberta

[2]Character Motion Synthesis Based on Deep Learning: A Survey Anjian Chen,Faculty of Arts Science, University of Toronto, Toronto, Ontario, Canada

Thank You