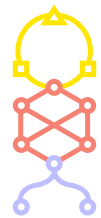
Style transfer for human motion with transfer with adversarial learning

Seminar

Sebastian Stelter
Universität Hamburg
Dept. Informatik – Knowledge Technology, WTM



KNOWLEDGE
TECHNOLOGY

http://www.informatik.uni-hamburg.de/WTM/

Outline

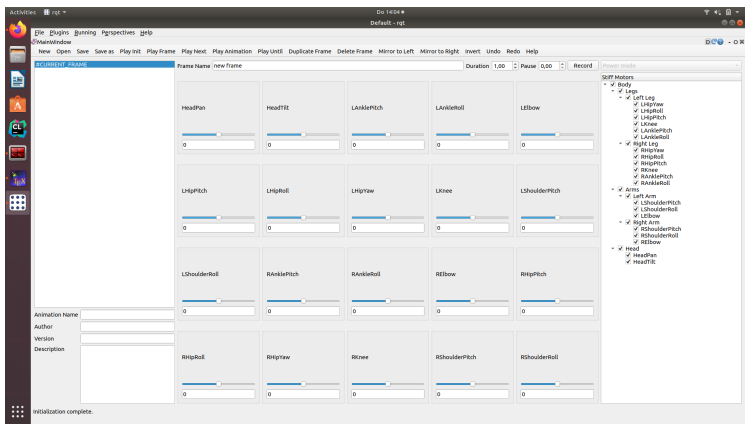
1. Motivation
2. Network Architecture
3. Implementation
4. Results
5. Evaluation

Outline

1. Motivation
2. Network Architecture
3. Implementation
4. Results
5. Evaluation

Motivation

- Generating motions is hard
- No cheap and fast alternatives
- Flexibility



[1]

Dataset

EMILYA Dataset

- Biovision Hierarchical Data (**.bvh**)
- Calibration data in same file
- Metadata, then keyframed joint positions
- 8206 samples, 11 actors
- 8x7 different combinations

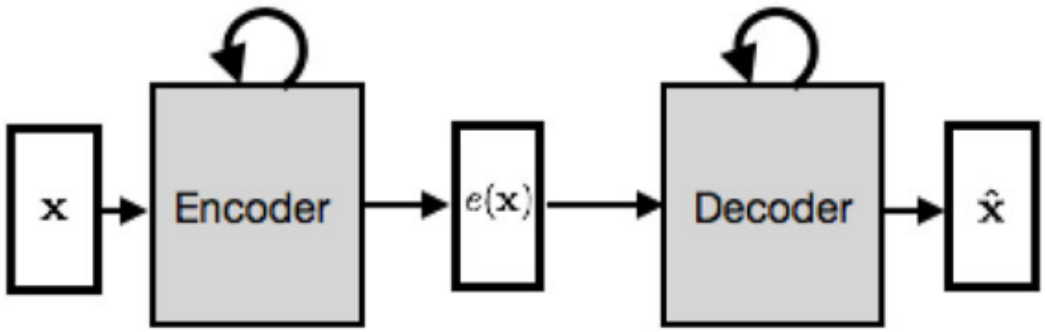
Body Movement Library

- Character Studio Marker (**.csm**)
- Separate files with calibration data
- Metadata, then keyframed joint positions
- 1323 samples, 30 actors
- 5x5 different combinations

Outline

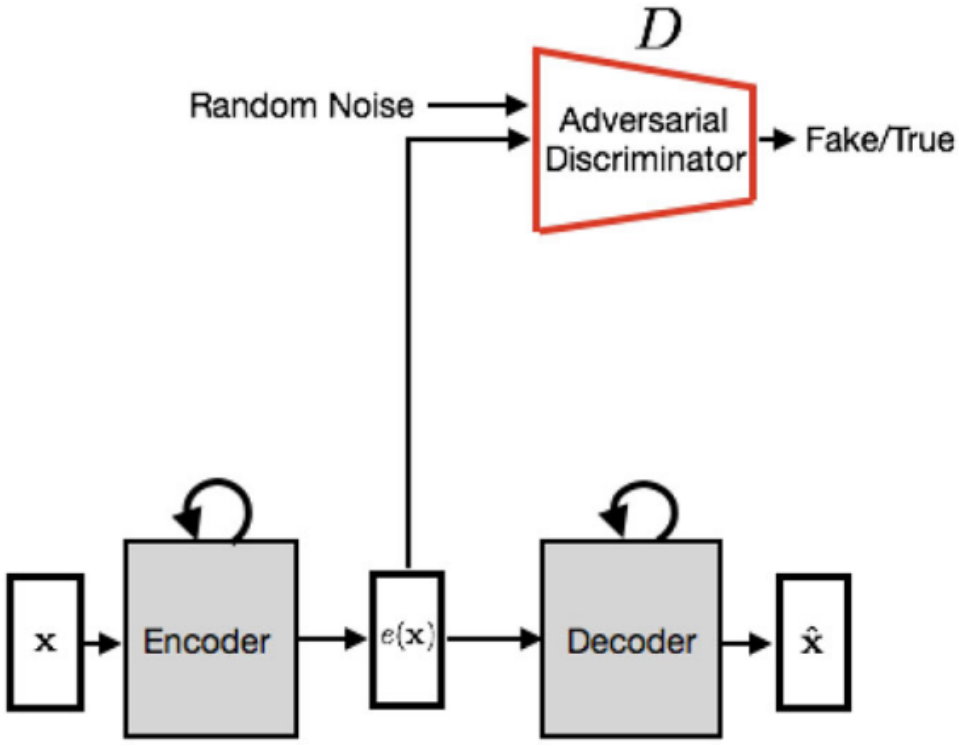
1. Motivation
2. Network Architecture
3. Implementation
4. Results
5. Evaluation

Network Architecture



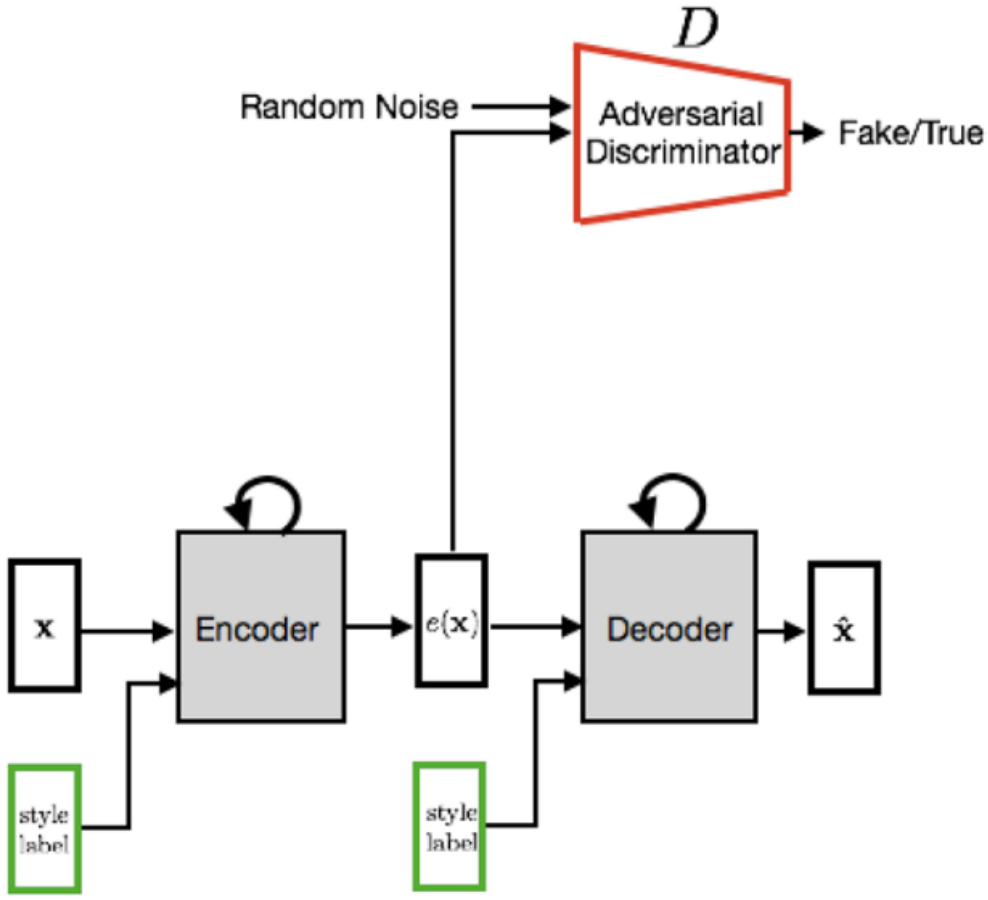
[2]

Network Architecture



[2]

Network Architecture

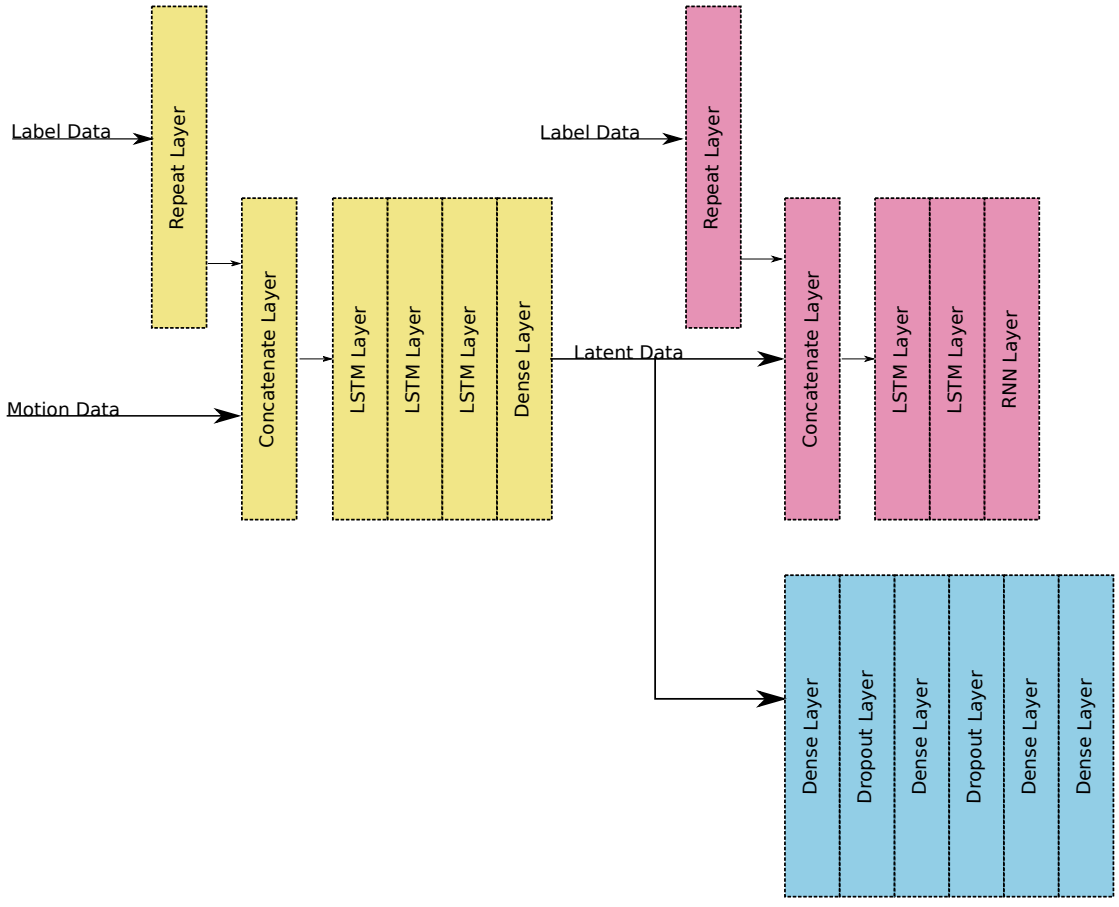


[2]

Outline

1. Motivation
2. Network Architecture
3. Implementation
4. Results
5. Evaluation

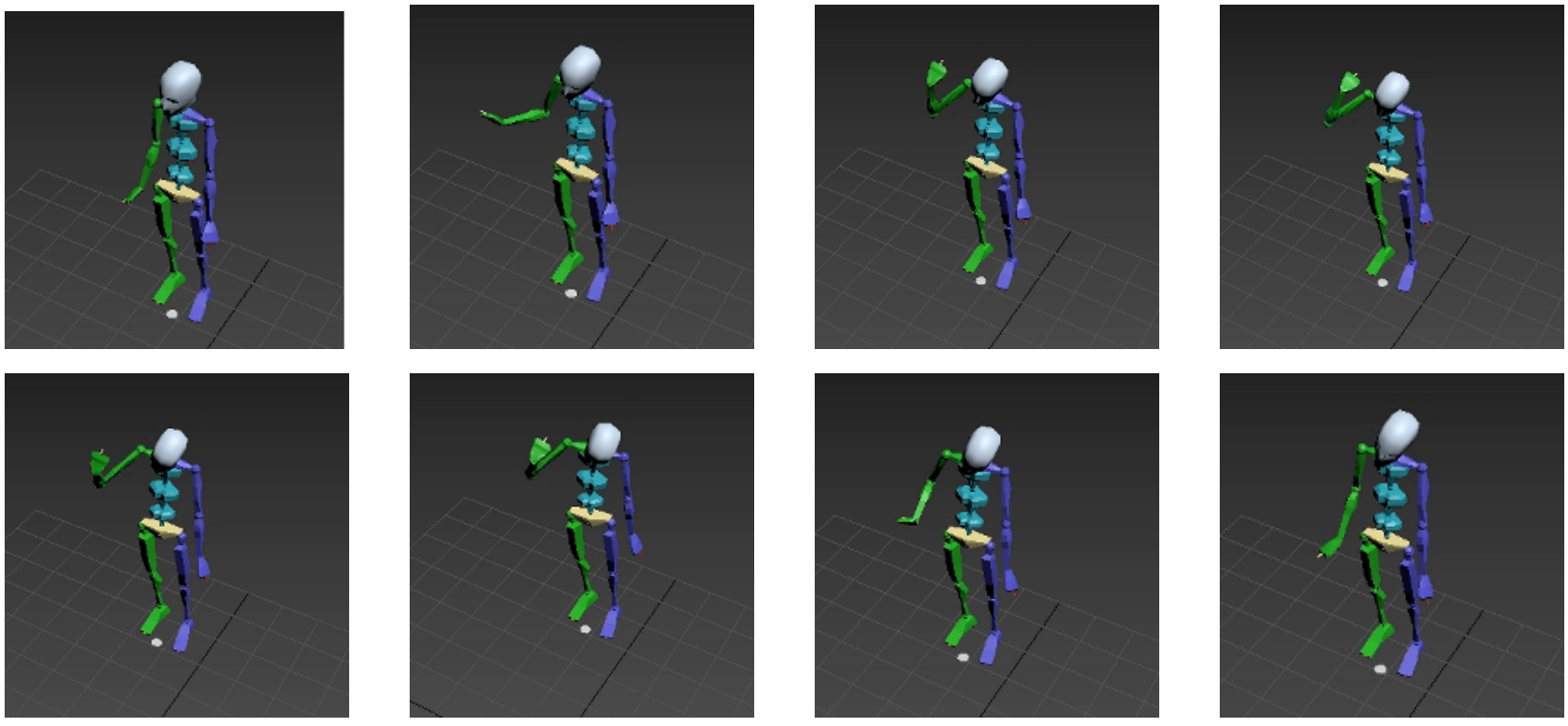
Implementation



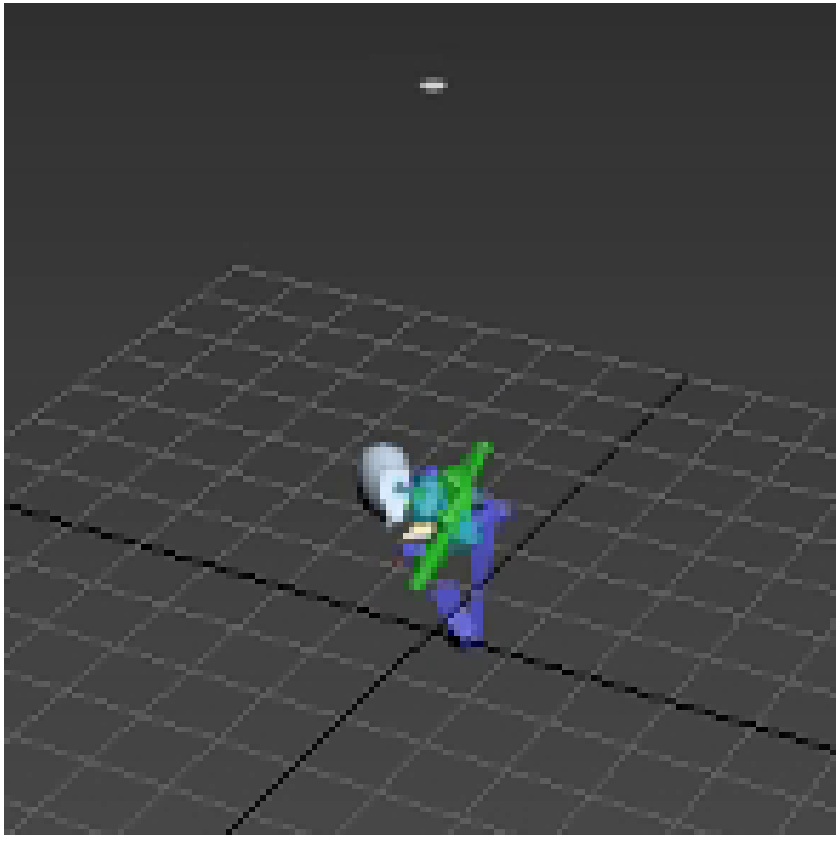
Outline

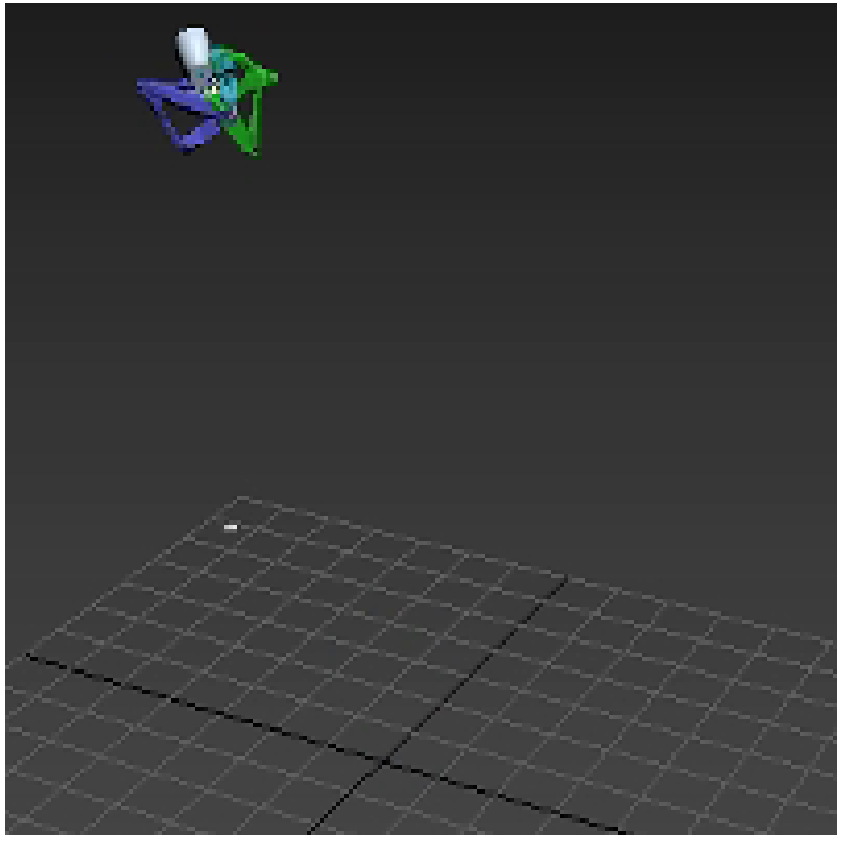
1. Motivation
2. Network Architecture
3. Implementation
4. Results
5. Evaluation

Target



Result





Outline

1. Motivation
2. Network Architecture
3. Implementation
4. Results
5. Evaluation

Reasons for Failure

- Smaller dataset
- No consideration for calibration data
- Network size

[1] Lee Rickwood.
Special suit uses motion capture technology to help parkinson's patients.

https://whatsyourtech.ca/2016/11/11/

special-suit-uses-motion-capture-technology-to-help-parkinsons-patients/.

[2] Qi Wang, Thierry Artières, Mickael Chen, and Ludovic Denoyer.
Adversarial learning for modeling human motion.
The Visual Computer, 36(1):141–160, 2020.

Thank you for your attention!

Feel free to ask question.