

# Skeleton Plays Piano: Online Generation of Pianist Body Movements from MIDI Performance

*YAMAHA Internship Project*

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Demo Videos



UNIVERSITY of  
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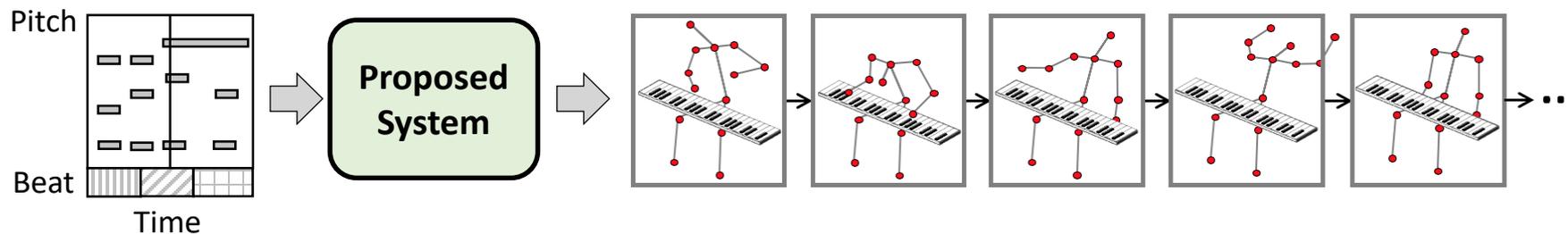
# Introduction

Demo videos



**Input:** MIDI Performance + Metric Structure (optional)

**Output:** expressive pianist body movement (skeleton coordinates sequence)

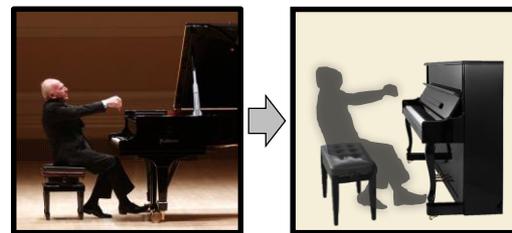


## Applications

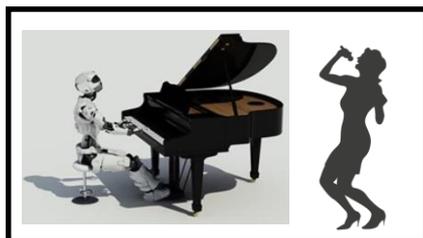
- Visual demonstration for education



- Replicating musicians for Immersive music enjoyment



- Interactive accompaniment system



- Expressive robot ensemble

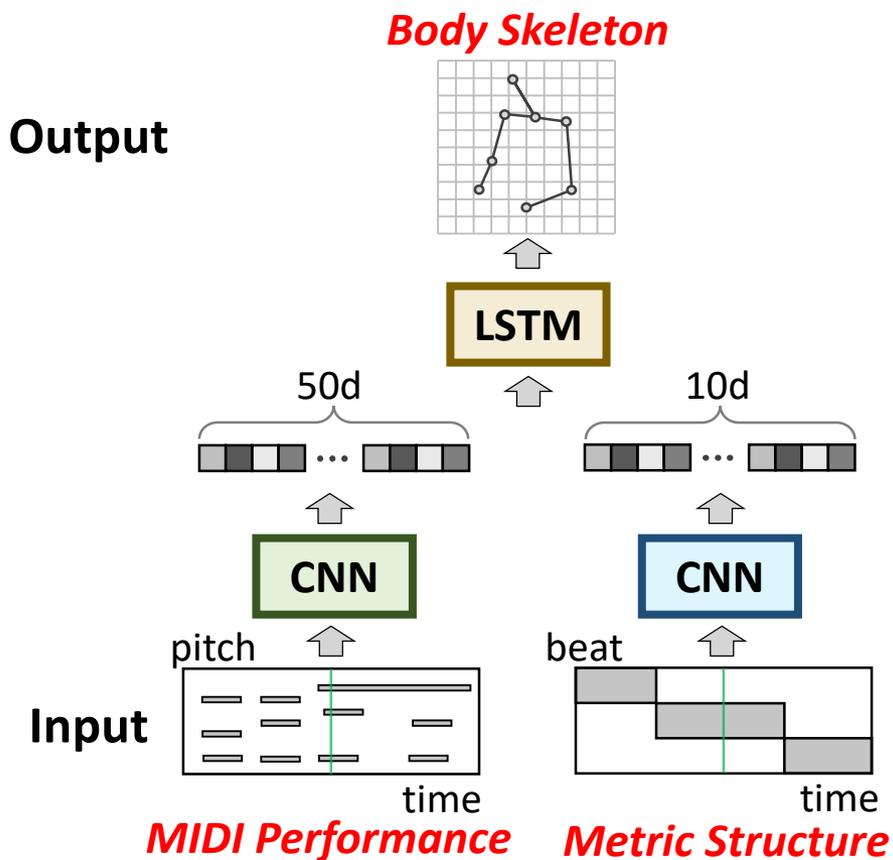


# Approach

Demo videos

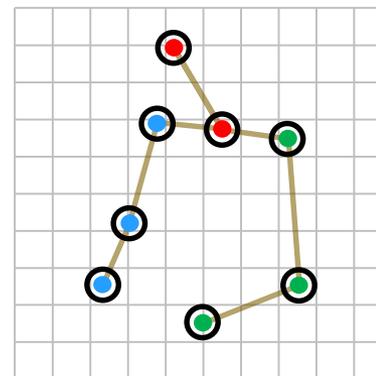


## Network Architecture

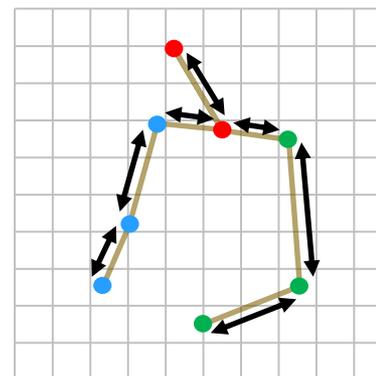


## Loss Functions

Body Joint Constraint



Body Limb Constraint  
(only applied after 30 epochs)



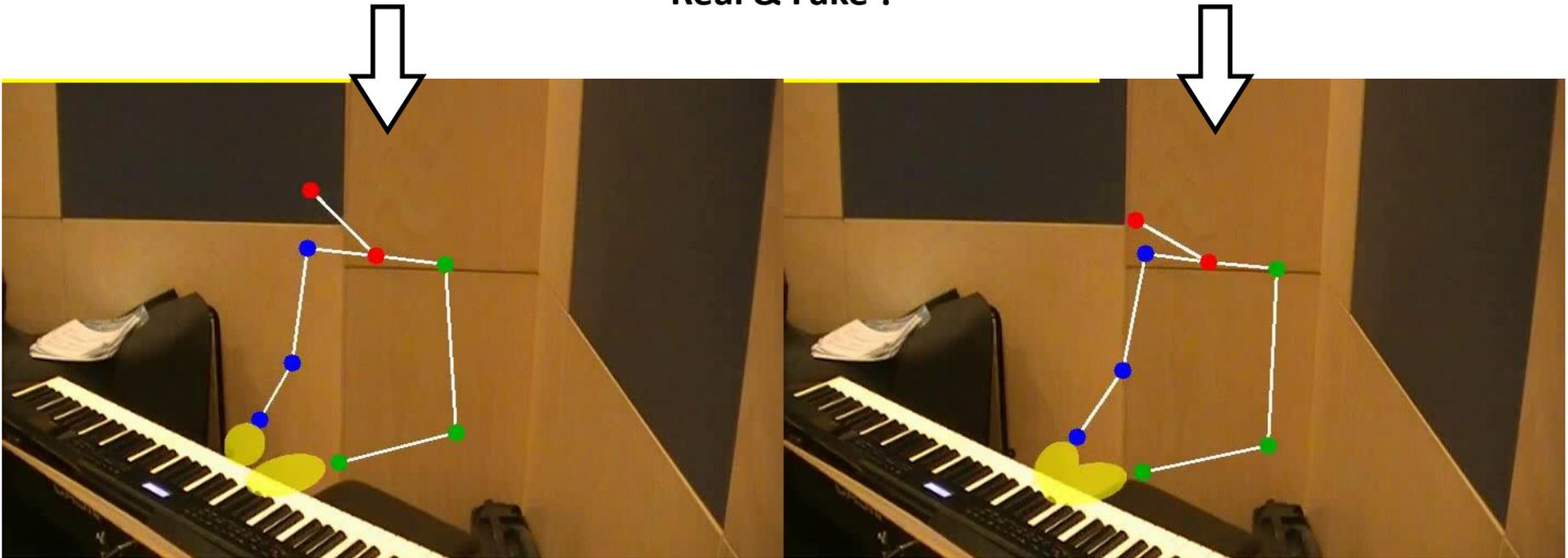
# Demo

Demo videos



- **Real one:** Extracted from Human Pianist using computer vision techniques
- **Fake one:** Computer generated from MIDI performance

Real & Fake ?



**THANKS!**

## Demo Videos

