



Style Equalization

Unsupervised Learning of Controllable Generative Sequence Models

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Quick Demo of our Handwriting Model

Input text

Writing in style is cool

input content

Style reference selector

They are expected to be released today

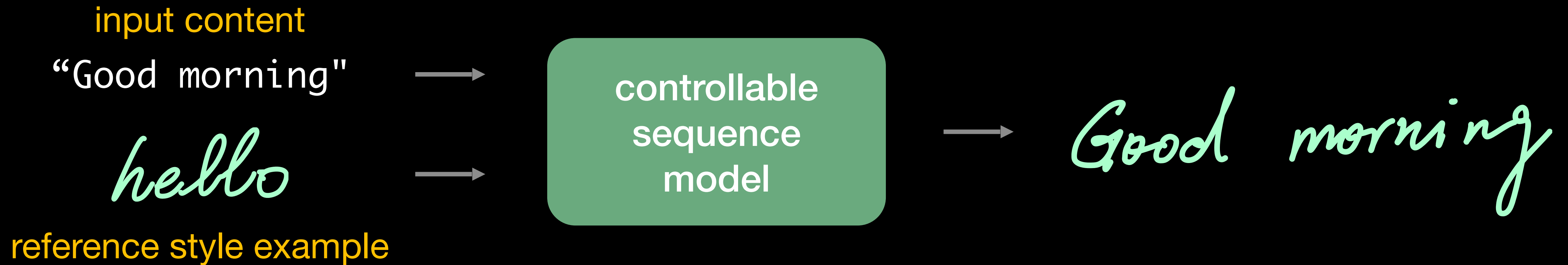
Unseen reference handwriting (as style)

Writing in style is cool

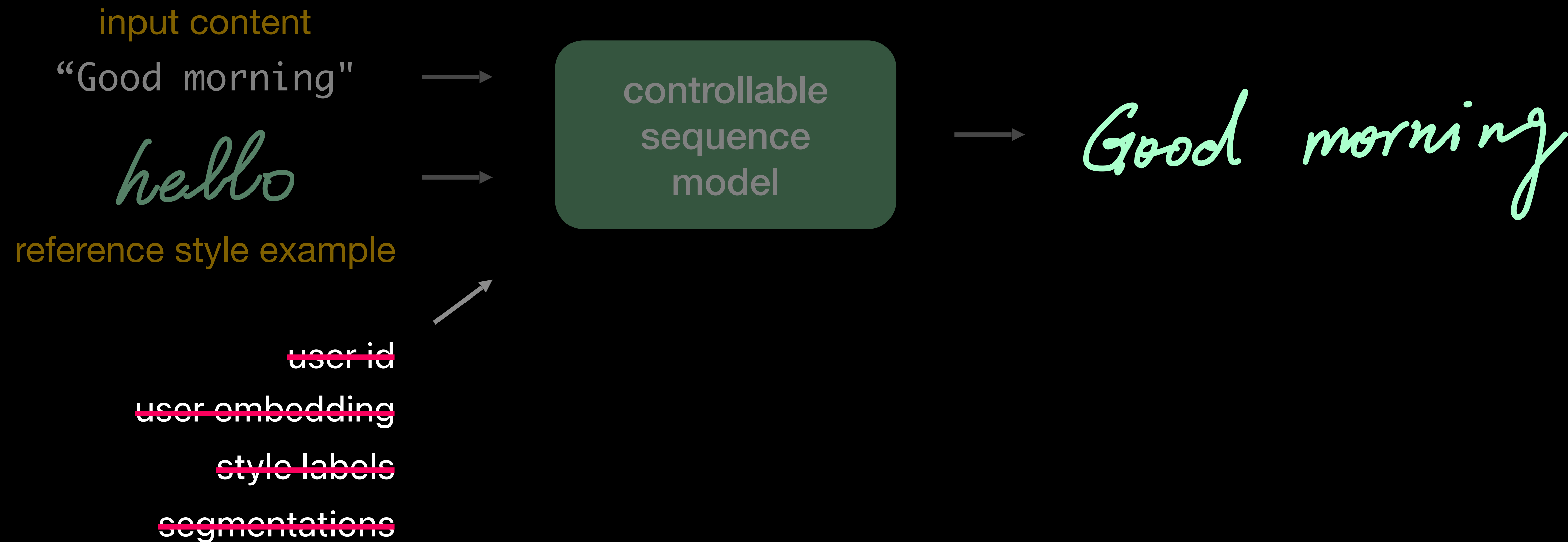
Generated handwriting

Start

Controllable Sequence Models



Controllable Sequence Models



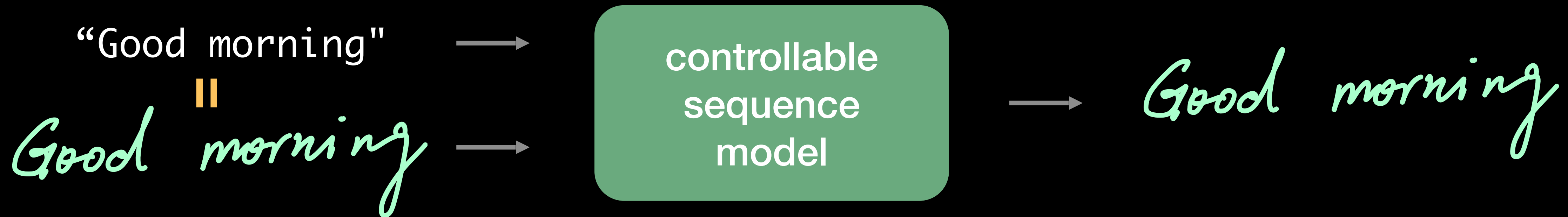
Our Dataset

| handwriting | content |
|--------------|--------------|
| hello | hello |
| Coffee | Coffee |
| Computer | Computer |
| Magic tricks | Magic tricks |
| ⋮ | ⋮ |

style writes the same content

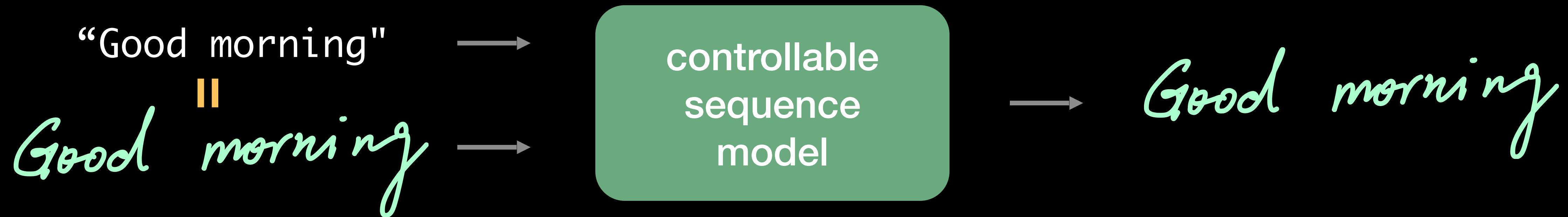
Main Challenge: Training-Inference Mismatch

During training

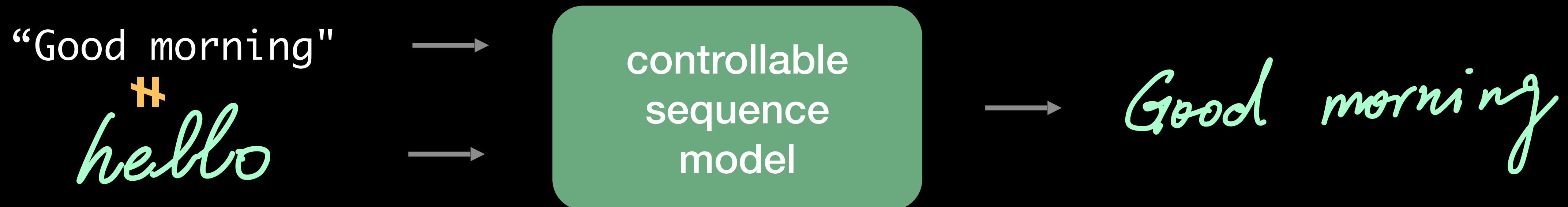


Main Challenge: Training-Inference Mismatch

During training



During inference



We propose a **simple training strategy** to tackle
the training-inference mismatch

Style Equalization

During training

two training samples

("Good morning", *Good morning*)

("computer", *Computer*)

Style Equalization

During training

ground truth content

"Good morning"

Computer

style input



controllable
sequence model

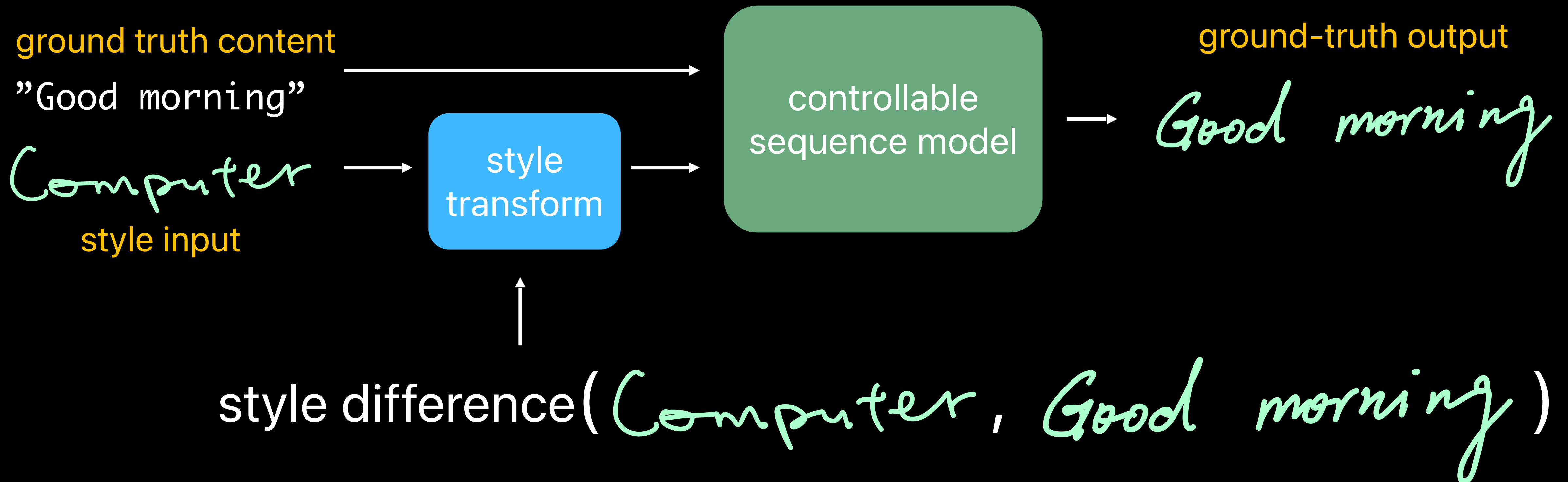


ground-truth output

Good morning

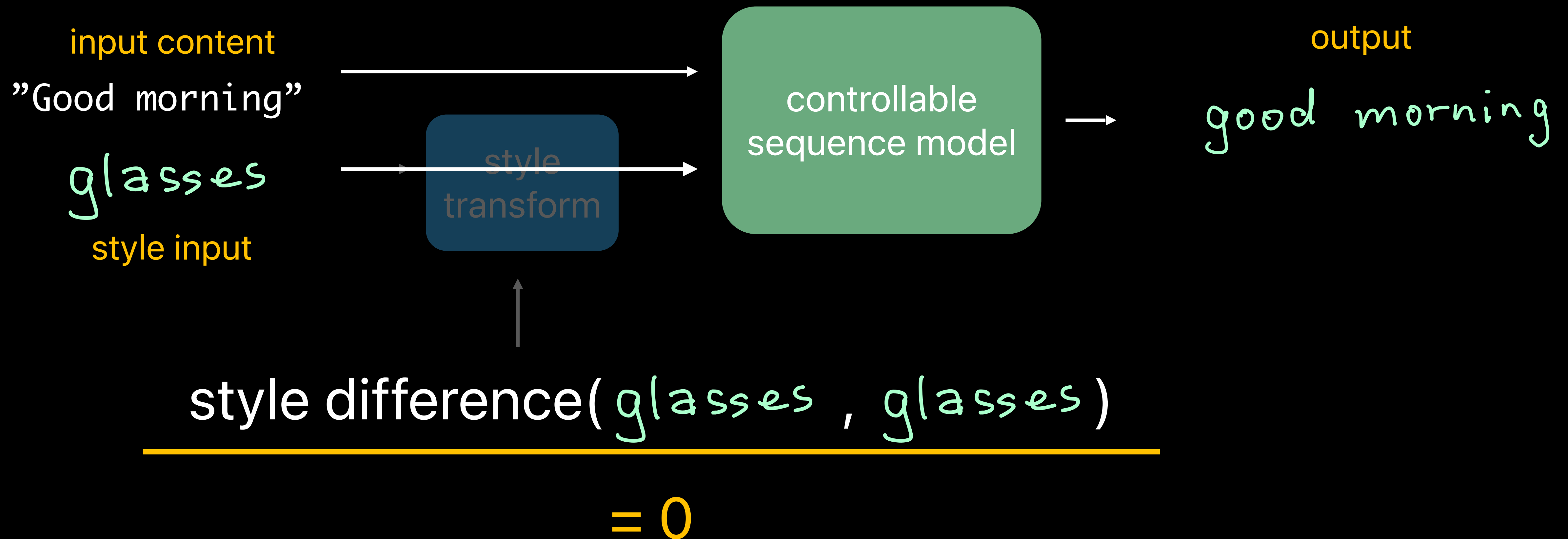
Style Equalization

During training



Style Equalization

During **inference**



Style Interpolation By Design

style 1



style 2

That is why we are
style equalization
Style equalization
Style equalization
Style equalization
Style equalization
some have accepted

Sample Style from Prior

style is subtle but powerful

style is subtle but powerful

style is subtle but powerful

style is subtle but powerful

style is subtle but powerful

style is subtle but powerful

Style is subtle but powerful

Demo (Speech Synthesis, trained on LibriTTS-960)

Input text

I am |

Style reference selector (never seen by the model till now)



That might be a punishment but it would also punish the patients.



Generate

Output





More results and details at
apple.github.io/ml-style-equalization/

