

Coherence and Identity Learning for Arbitrary-length Face Video Generation

Shuquan Ye, Chu Han, Jiaying Lin, Guoqiang Han, Shengfeng He*



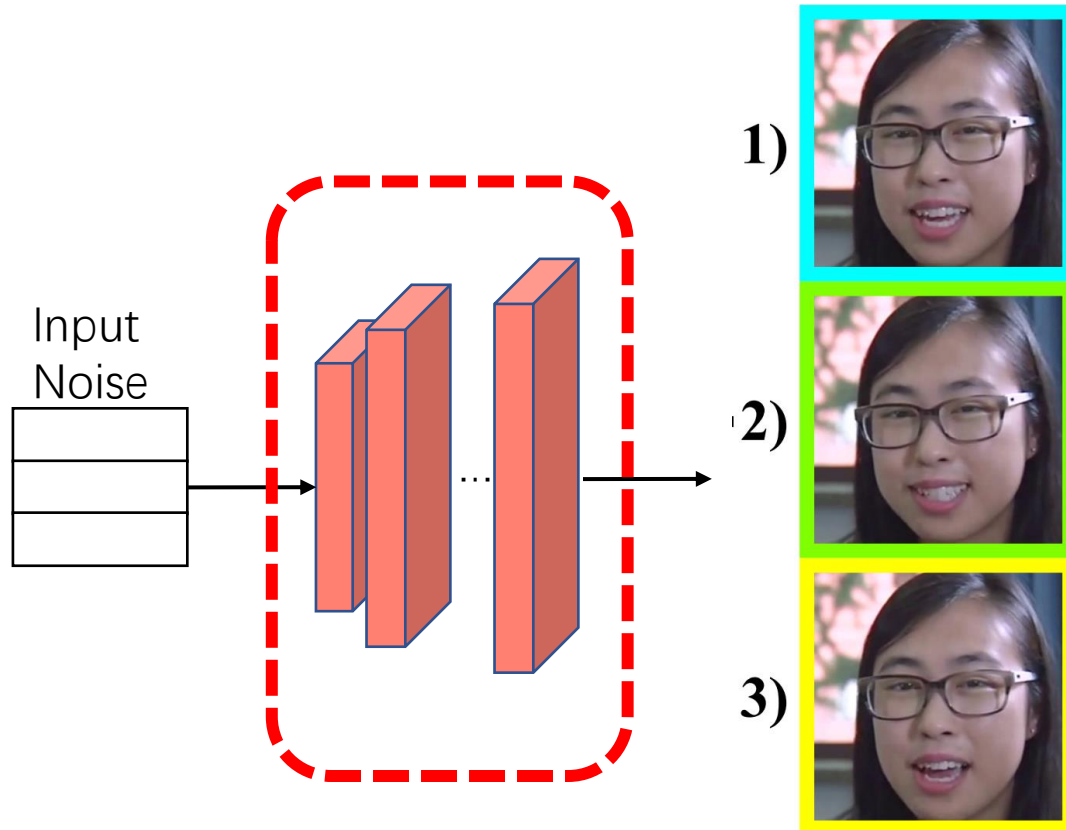
Introduction

- **Goal:** arbitrary-length face videos generation without any face exemplar or landmark
- **Challenges:**
 - Identity-preserving face synthesis
 - Inter-frame consistency
- **Contributions:**
 - The first to synthesize face videos without any condition
 - A new Identity-aware GAN model
 - A new face coherence network



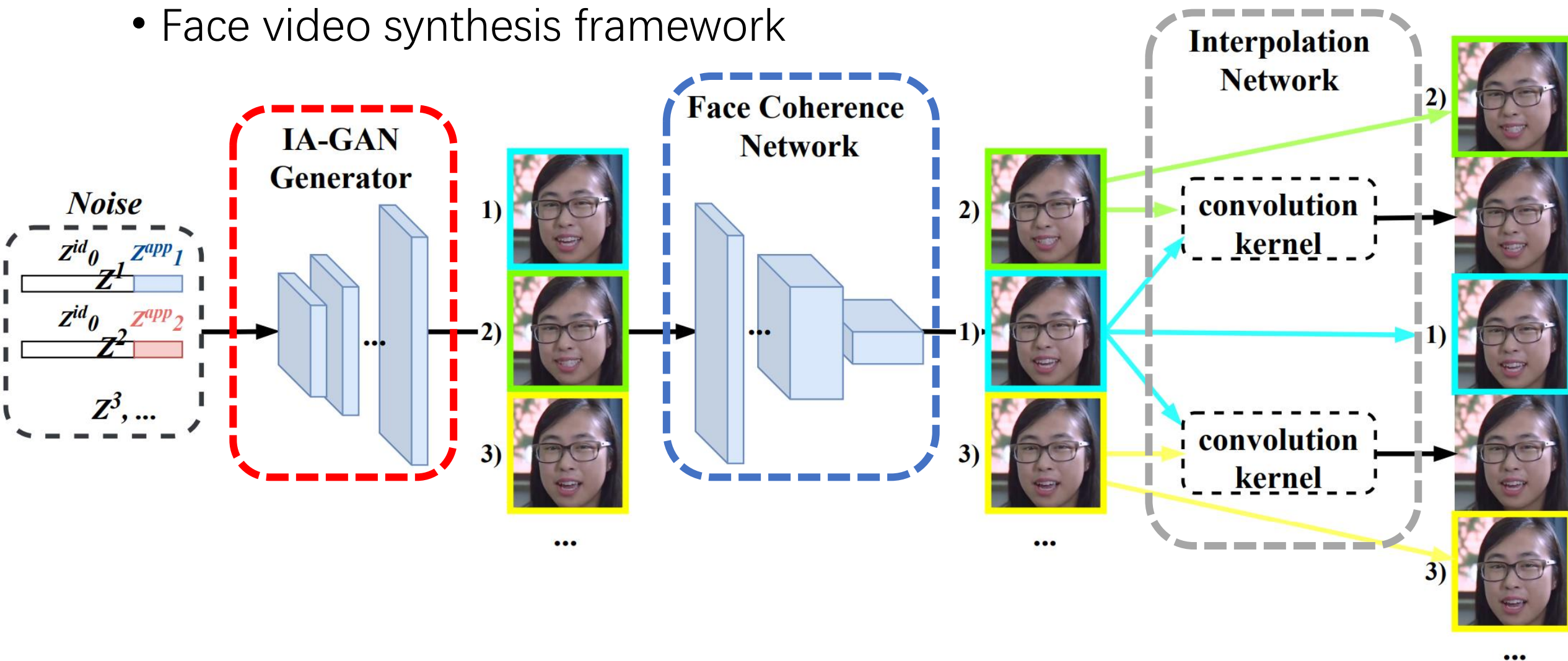
How to Simultaneously Handle the Two Problems?

- A cascaded network with:
Face identity synthesis



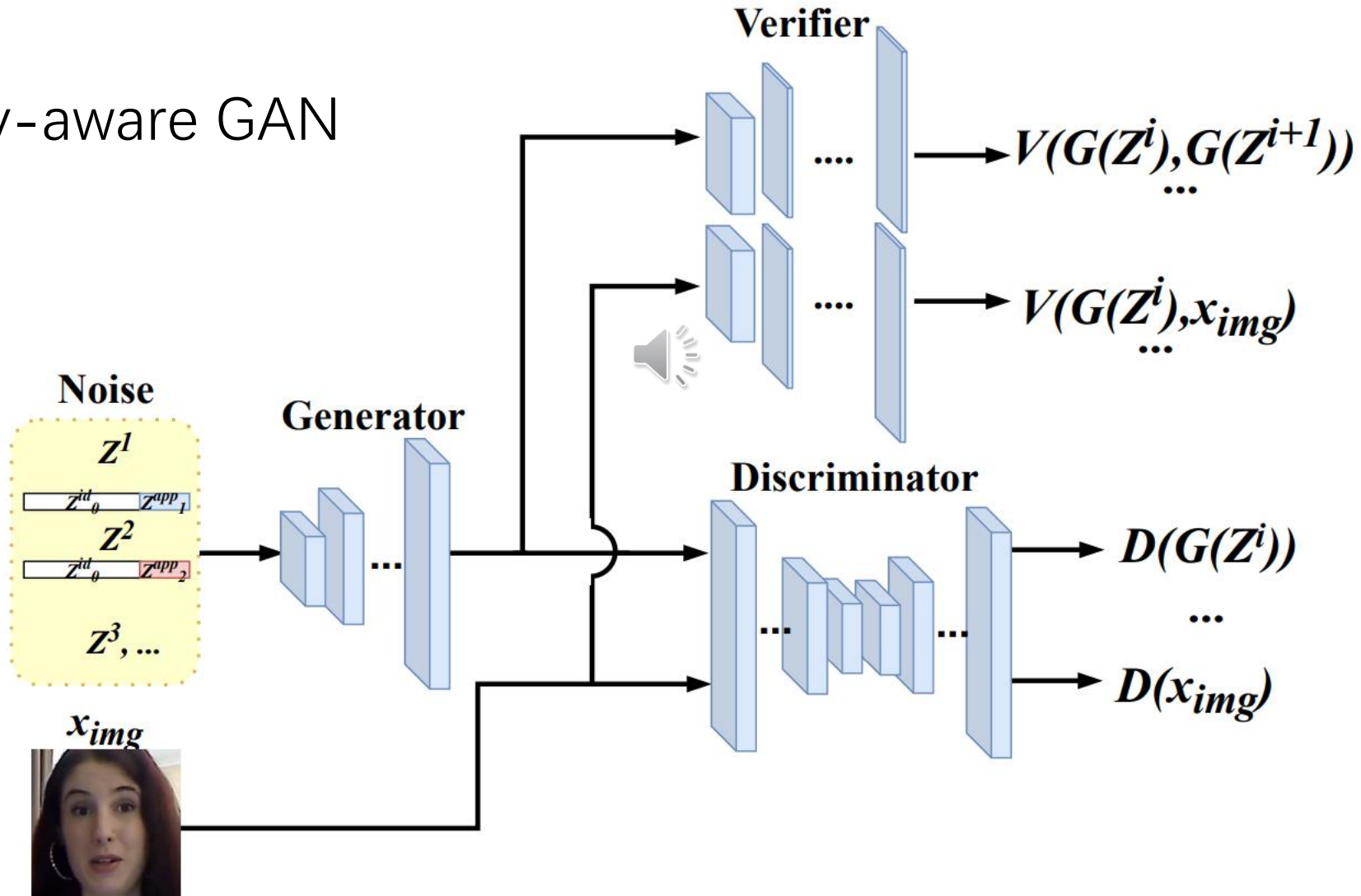
Methodology

- Face video synthesis framework



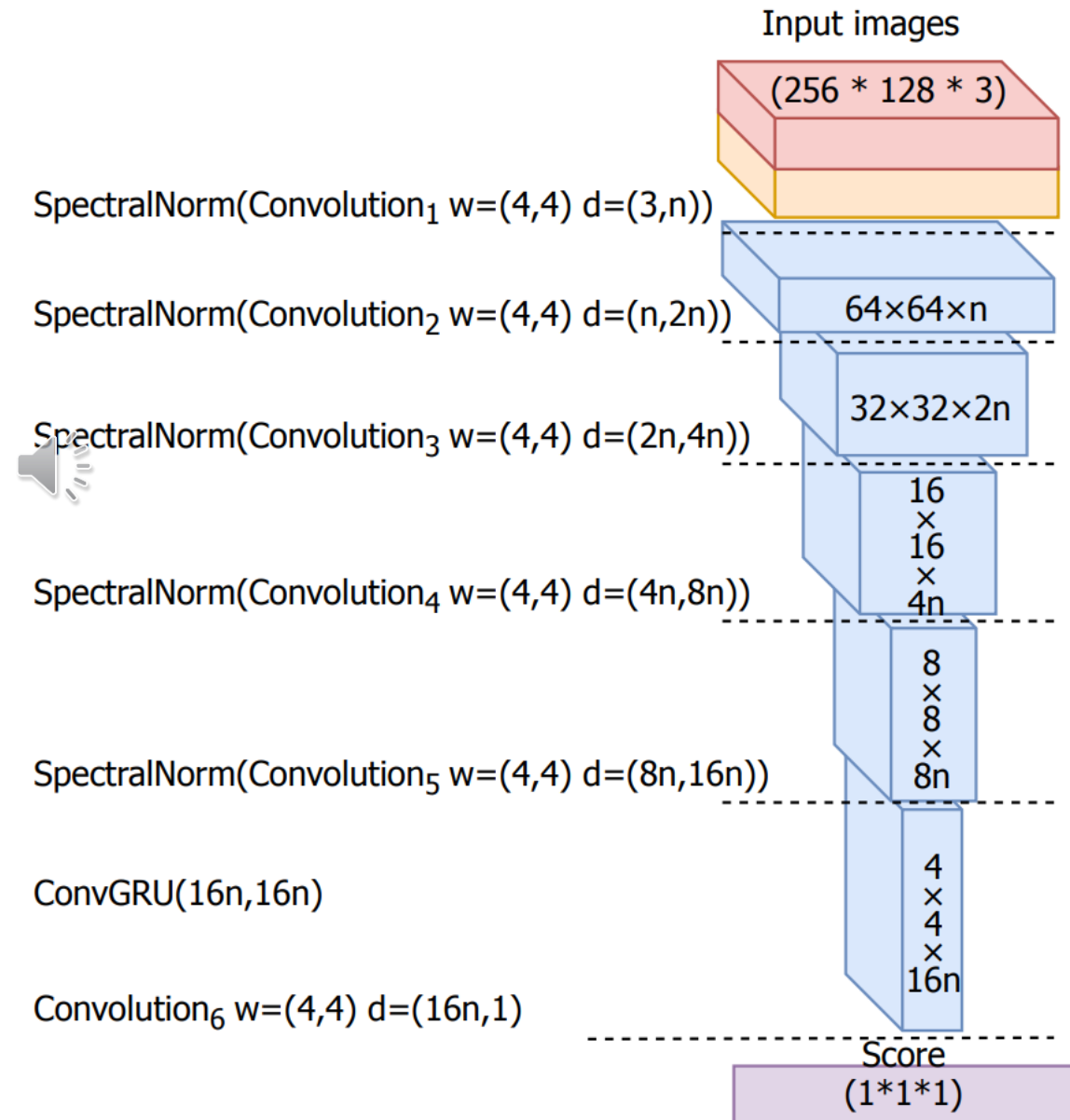
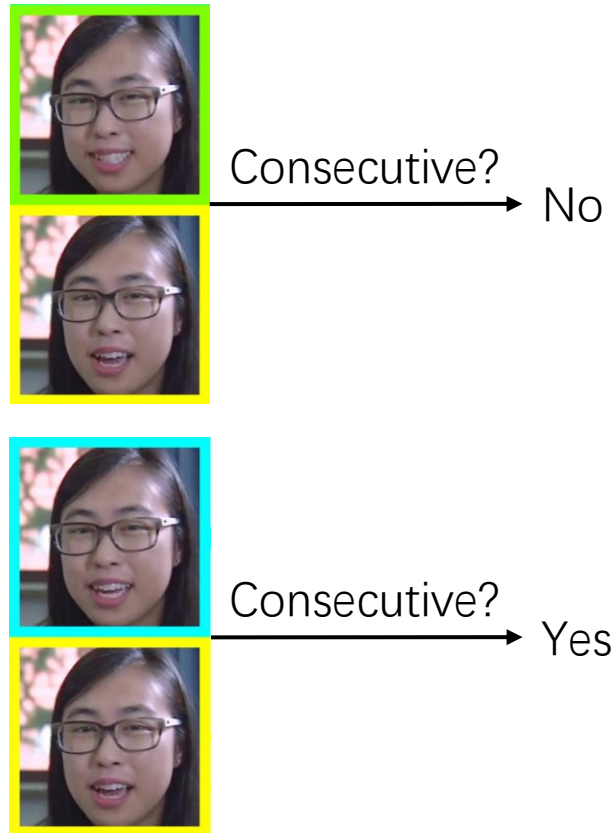
Methodology

- Identity-aware GAN



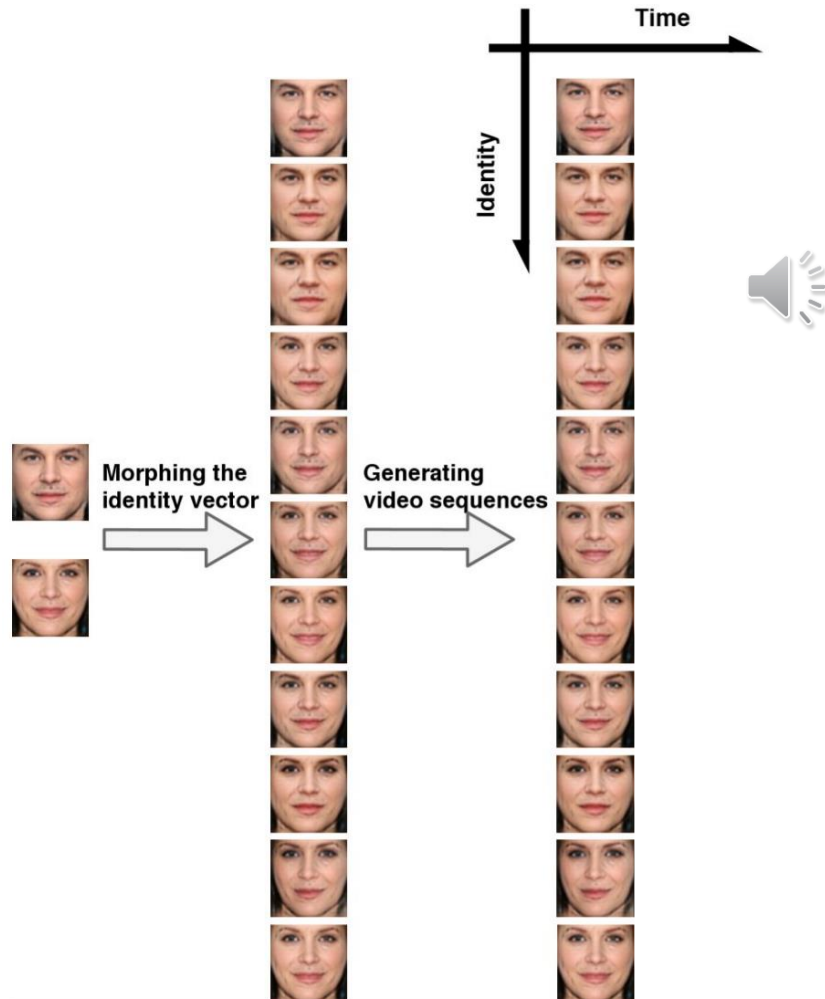
Methodology

- Face Coherence Network



Experiments

- Visualization of the Identity Latent Space in IA-GAN



Experiments

- Comparison with Other Methods & User Study

QUANTITATIVE COMPARISON ON IDENTITY-PRESERVING ABILITY

Method	$n_f = 30$	$n_f = 45$	$n_f = 60$	$n_f = 75$
Ours (with PT)	98.0%	97.8%	97.5%	97.4%
Ours (w/o PT)	94.1%	93.5%	93.2%	93.0%
BEGAN-morpher	92.1%	91.0%	90.9%	86.8%
Real Videos	100.0%	100.0%	100.0%	100.0%

USER STUDY RESULTS OF DIFFERENT METHODS



Standards	Methods			
	Real	Ours	MoCo-GAN	BEGAN-morpher
Face Identity	4.677	3.442	4.012	2.942
Face Coherence	4.498	3.634	3.401	2.909
Face Angle Diversity	3.566	3.457	2.459	2.781
Video Quality	4.421	3.357	2.862	2.992
Overall Preference	4.392	3.469	3.124	2.842

Thanks for  listening!