VFHQ: A High-Quality Dataset and Benchmark for Video Face Super-Resolution

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project page

Video Face dataset with High Quality (VFHQ)

VFHQ contains over **16,000** high-fidelity clips of diverse interview scenarios

MOTIVATION

A **high-quality** video face dataset is desired for VFSR field:

1. The commonly-used dataset in VFSR is VoxCeleb1 or VoxCeleb2, whose contents are **blurry** and have apparent **video compression artifacts**.

2. Applying single-frame face SR methods to videos leads to **inconsistency** among frames, and this inconsistency issue could be mitigated by training with multi-frame supervision.
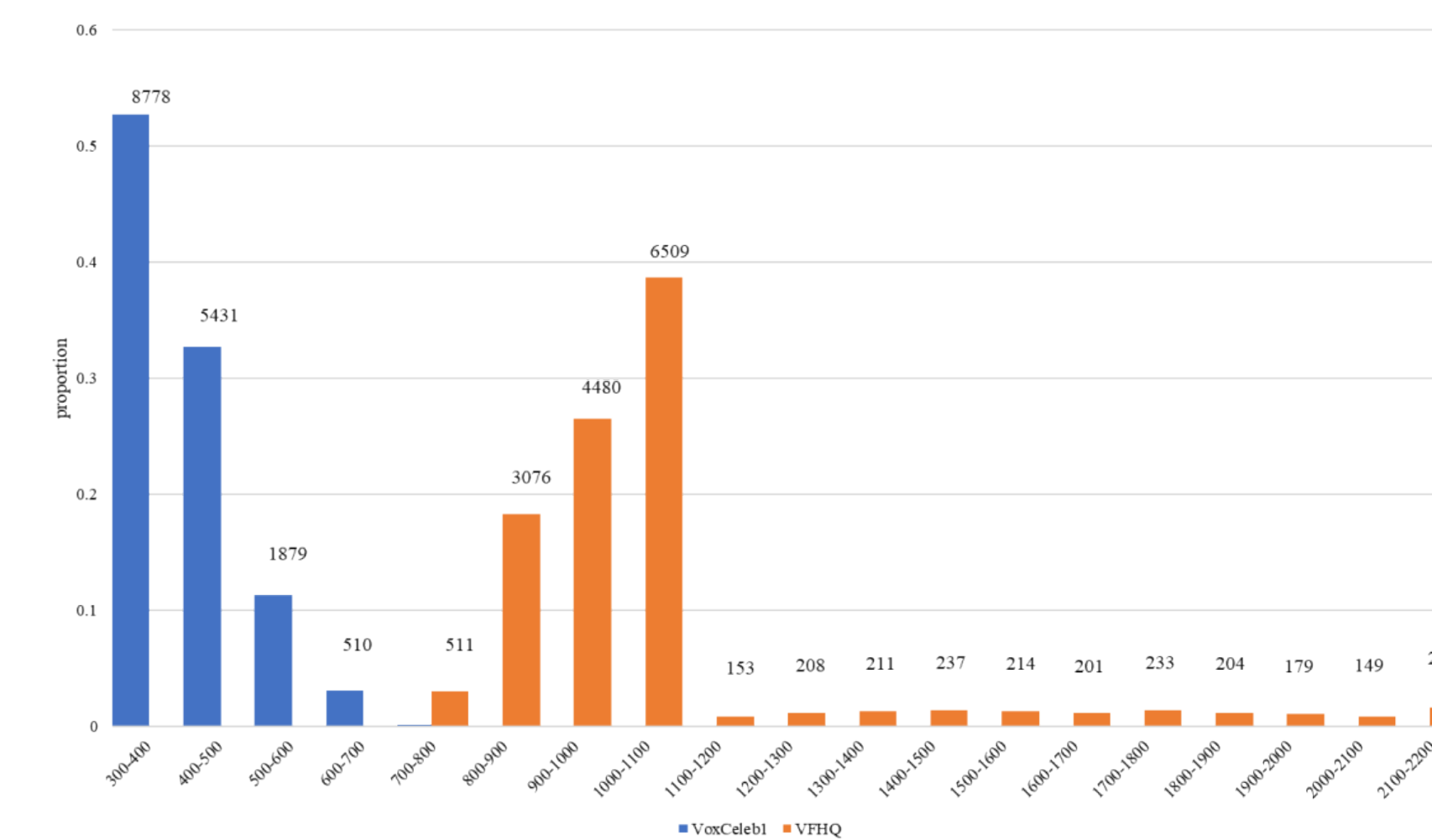
project page: https://liangbinxie.github.io/projects/vfhq group: https://xpixel.group/
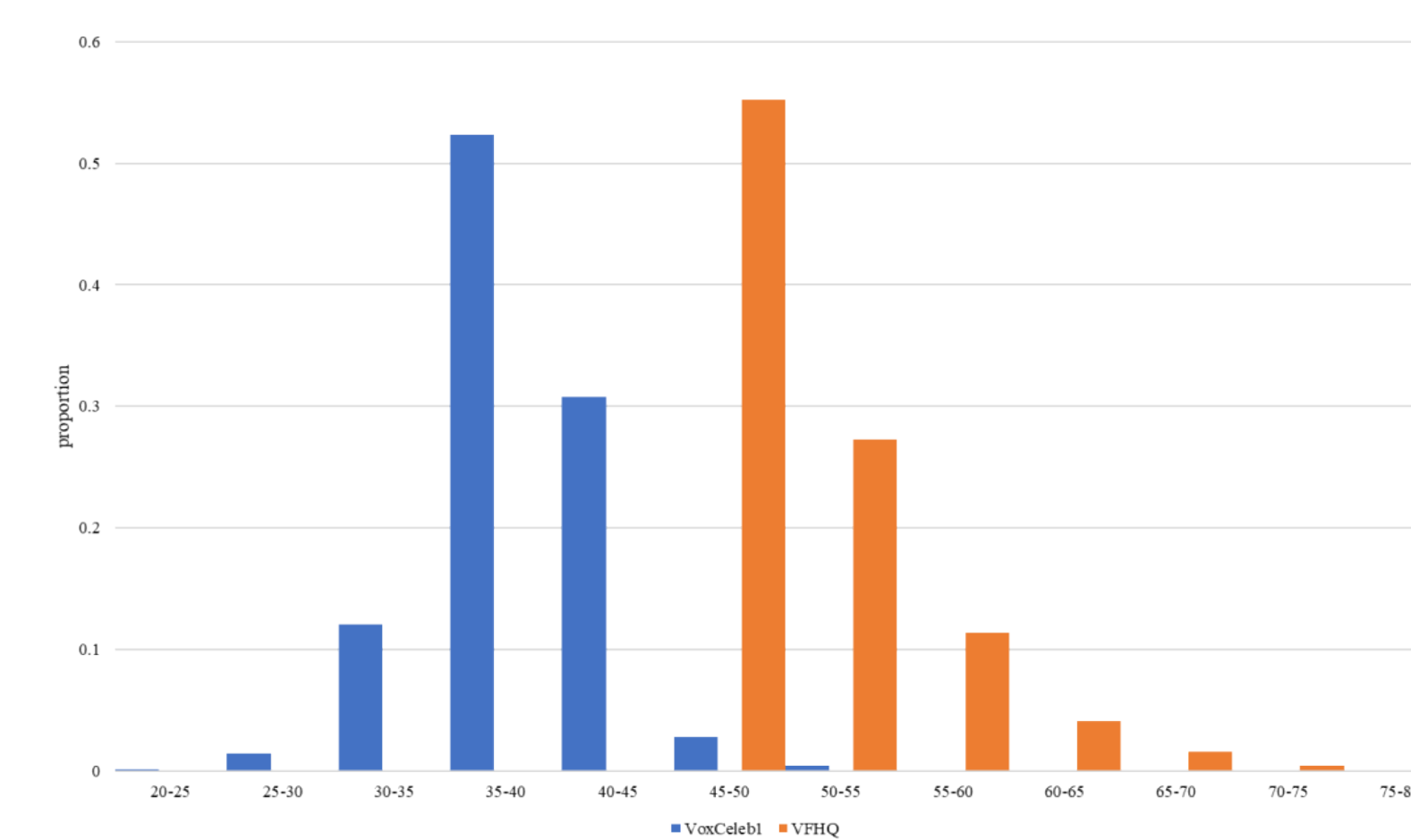
Dataset Description
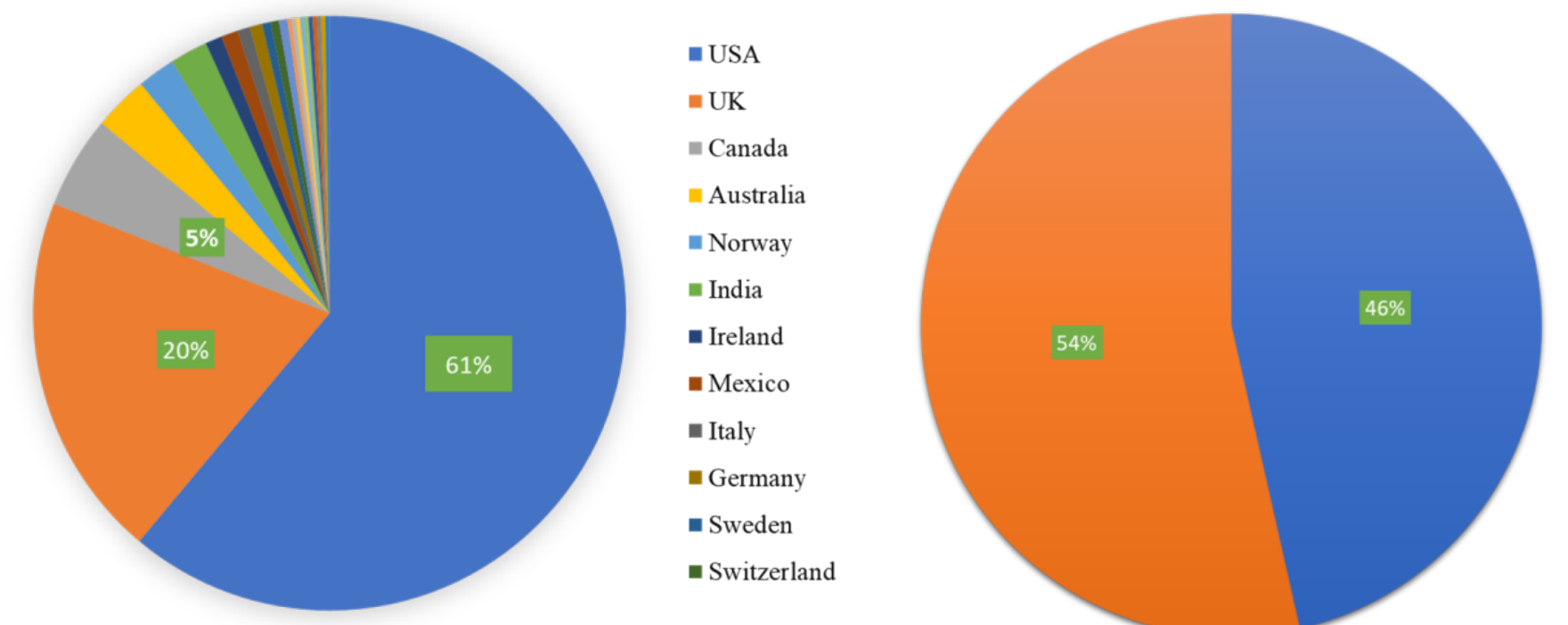
(a) Nationality   (b) Gender
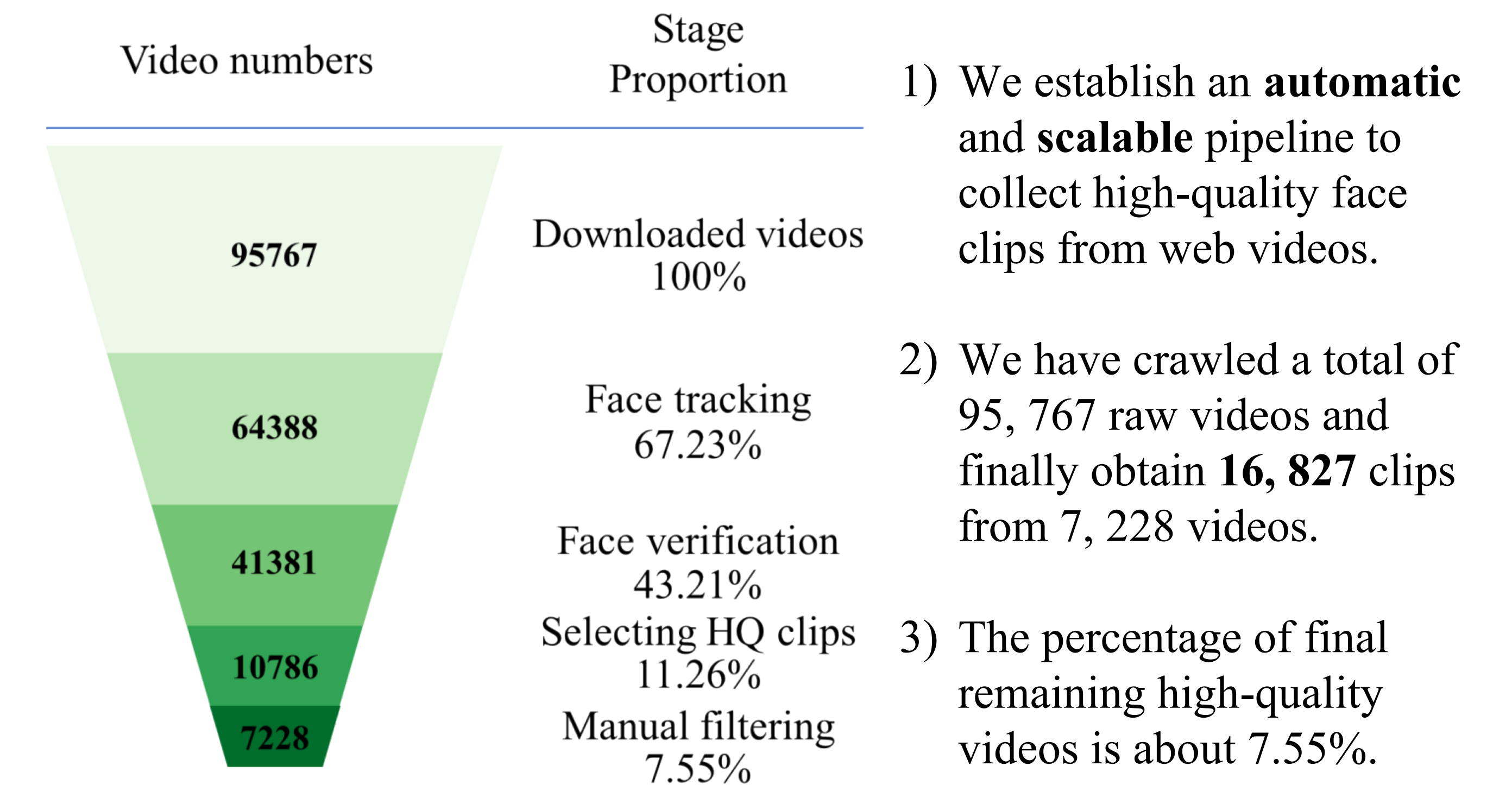

(c) Clip Resolution

➤ The resolution of VFHQ is much **higher** than VoxCeleb1.

(d) HyperIQA Score

➤ The quality of VFHQ is much **higher** than VoxCeleb1.

Dataset Collection Pipeline

Video numbers	Stage / Proportion
95767	Downloaded videos 100%
64388	Face tracking 67.23%
41381	Face verification 43.21%
10786	Selecting HQ clips 11.26%
7228	Manual filtering 7.55%

1) We establish an **automatic** and **scalable** pipeline to collect high-quality face clips from web videos.

2) We have crawled a total of 95, 767 raw videos and finally obtain **16, 827** clips from 7, 228 videos.

3) The percentage of final remaining high-quality videos is about 7.55%.

Benchmarking Study

Interval	Metrics	MSE-based				GAN-based		
		Bicubic	RRDB	EDVRM	BasicVSR	ESRGAN	EDVRM-GAN	BasicVSR-GAN
5	PSNR	31.964	35.332	36.090	**36.258**	32.803	33.592	32.327
	SSIM	0.8939	0.9302	0.9399	**0.9412**	0.8961	0.9089	0.8869

Bicubic   RRDB   EDVRM   BasicVSR   ESRGAN   EDVRM-GAN   BasicVSR-GAN   GT

Benchmarking results with bicubic degradation model

Interval	Metrics	MSE-based			GAN-based		GAN-prior based	
		Bicubic	EDVRM	BasicVSR	EDVRM-GAN	BasicVSR-GAN	DFDNet	GFPGAN	GPEN
5	PSNR	26.842	29.457	**29.472**	26.682	25.813	25.178	25.978	26.672
	SSIM	0.7909	0.8428	**0.8430**	0.7638	0.741	0.7560	0.7723	0.7768
	LPIPS	0.4098	0.3288	0.3309	**0.3076**	0.3214	0.4008	0.3446	0.3607

BasicVSR-GAN   GFPGAN
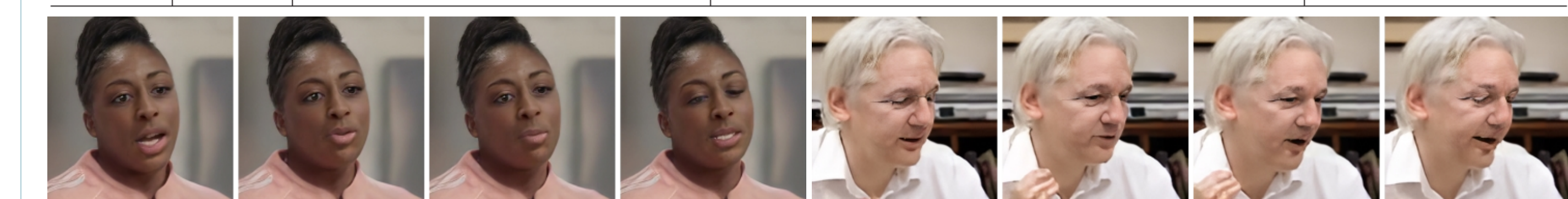
Benchmarking results with blind degradation model