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Diversity in Face Recognition Databases sensitivenets.com							.com		
					7		•		
	# images	s #identities	# Avg. Images per identity	Asian		Black		Caucasian	
	, magoo	<i>"</i> • • • • • • • • • • • • • • • • • • •		Female	Male	Female	Male	Female	Male
MS-Celeb-1M	8.5M	100K	85	4.5%	7.7%	3.9%	12.1%	19.2%	52.4%
Megaface	4.7M	660K	7	8.1%	10.6%	4.7%	6.2%	30.3%	40.0%
VGGFace2	3.3M	9K	370	3.6%	3.4%	6.3%	10.5%	30.2%	45.9%
VGGFace	2.6M	2.6K	1K	2.9%	2.1%	6.9%	5.8%	38.6%	43.7%
YouTubeFaces	621K	1.6K	390	3.0%	7.9%	4.0%	7.7%	20.3%	56.9%
CasiaFace	500K	10.5K	48	2.6%	2.6%	5.7%	7.2%	33.2%	48.8%
CelebA	203K	10.2K	20	5.5%	4.4%	8.2%	6.4%	41.5%	33.9%
PubFig	58K	200	294	1.0%	2.0%	5.5%	6.5%	35.5%	49.5%
IJB-C	21K	3.5K	6	6.2%	5.4%	6.0%	11.8%	30.2%	40.3%
UTKface	24K	-	-	8.9%	7.1%	16.3%	21.5%	20.0%	26.2%
LFW	15K	5.7K	2	2.2%	7.2%	3.3%	9.6%	18.7%	58.9%
BioSecure	2.7K	667	4	4.5%	4.3%	2.1%	3.1%	36.0%	50.1%
Average				3.8%	4.7%	5.3%	8.1%	28.4%	44.5%
DiveFace	120K	24K	5	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%

In order to obtain demographic statistics, gender and ethnicity classification algorithms were trained based on a ResNet-50 model and 12K identities of DiveFace database (equally distributed between the six demographic groups). Models were evaluated in 20K labeled images of Celeb-A with performance over 97%.

ls it a Real Thread?									
Treating a person or particular group of people differently , especially in a worse way from the way in which you treat other people, because of their skin colour, gender, age, etc.									
Cambridge English Dictionary, Definition of Discrimination									
CASE STUDY: Face	CASE STUDY: Face Recognition Performance								
Cauca	Caucassian		an	Black					
Male	Female	Male	Female	Male	Female				
		7		P					
98%	98 %	93%	93%	93%	95%				
A. Acien, A. Morales, R. Vera-Rodriguez, I. Bartolome and J. Fierrez, "Measuring the Gender and Ethnicity Bias in Deep Models for Face Recognition", in <i>IAPR Iberoamerican Congress on Pattern Recognition (CIARP)</i> , LNCS, Springer, vol. 11401, Madrid, Spain, November 2018. [PDF] 20									

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CASE STUDY: Face Recognition Performance

Caucassian		As	ian	Black		
Male	Female	Male	Female	Male	Female	
	1b 1p				10	
98%	98%	93%	93%	9 3%	95%	

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Experiments	BiDA Lab						
 Biased: priviledge ethnic group = 90% other two = 5% Unbiased: 33% images from each group 							
Model	Α	В	C	Avg	Std		
ResNet Biased (A)	96.84	94.14	94.45	95.14	1.21		
ResNet Biased (B)	93.29	96.86	95.40	95.18	1.47		
ResNet Biased (C)	94.80	95.21	97.01	95.67	0.96		
ResNet Unbiased	95.50	95.35	96.11	95.65	0.33		
* Database available: <u>https://github.com/BiDAlab/DiveFace</u> A. Morales, J. Fierrez, et al. "SensitiveNets: Learning Agnostic Representations with Application to Face Images", <i>TPAMI</i> 2021.							



































A. Peña, I. Serna, A. Morales, J. Fierrez, "Bias in Multimodal AI: Testbed for Fair Automatic Recruitment", Proc. of IEEE CVPR Workshop on Fair, Data Efficient and Trusted Computer Vision (CVPRw), Washington, Seattle, USA, 2020.

A. Peña, I. Serna, A. Morales and J. Fierrez, "FairCVtest Demo: Understanding Bias in Multimodal Learning with a Testbed in Fair Automatic Recruitment", in ACM Intl. Conf. on Multimodal Interaction (ICMI), October 2020. (also presented at ECCV 2020) [PDF]



























