

Face Stimulus Meta-Databases

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Finding the right stimuli

- Different questions in face research require different kinds of stimuli



SCface
Grgic et al. (2011)

Finding the right stimuli

- Different questions in face research require different kinds of stimuli



FACES
Ebner et al. (2018)

Finding the right stimuli

- Different questions in face research require different kinds of stimuli



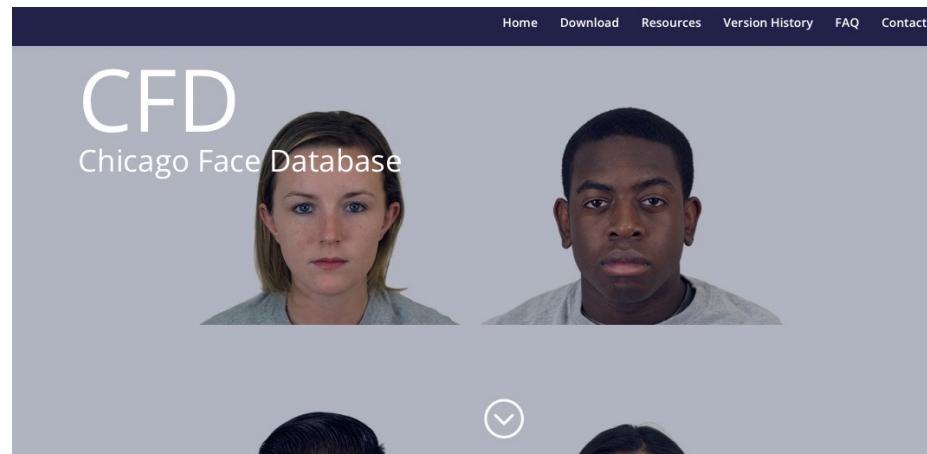
Face Research Lab London Set
DeBruine & Jones (2017)

Finding the right stimuli

- Different questions in face research require different kinds of stimuli
- All kinds of face stimulus sets exist for research use
- But to use them, researchers need to know about them & be able to find them

Finding the right stimuli

- Some stimulus sets are associated with a publication and/or are hosted on clear, dedicated pages



THE DATABASE

The Chicago Face Database was developed at the University of Chicago by Debbie S. Ma, Joshua Correll, and Bernd Wittenbrink. The CFD is intended for use in scientific research. It provides high-resolution, standardized photographs of male and female faces of varying ethnicity between the ages of 17-65. Extensive norming data are available for each individual model. These data include both physical attributes (e.g., face size) as well as subjective ratings by independent judges (e.g., attractiveness).



download

Ma et al. (2015)



ABOUT KDEF & AKDEF

The **Karolinska Directed Emotional Faces (KDEF)** is a set of totally 4900 pictures of human facial expressions. The **Averaged KDEF (AKDEF)** is a set of averaged pictures created from the original KDEF images. You will find more details about KDEF [here](#), and about AKDEF [here](#).

The KDEF and AKDEF materials were produced in 1998 and have since then been freely shared within the research community. By today, KDEF has been used in more than 1500 research publications. If you wish to find out for which these are, and for what purposes they materials have been used, you can browse the existing publications on [google scholar here](#).

The KDEF and AKDEF stimuli may be used only by researchers, and only for non-commercial purposes. The materials may never be redistributed in any form without written consent. You will find the details about if and how KDEF and AKDEF stimuli may be used and published [here](#).

Lundqvist et al. (1998)

Finding the right stimuli

Meta-database guide

Unpublished resources

Future directions

Finding the right stimuli

- Some stimulus sets are associated with a publication and/or are hosted on clear, dedicated pages
- Others are more difficult to track down or less well-known
- Can lead to the same stimulus sets being used over & over, or researchers choosing stimuli that may not be best suited for their purposes

Finding the right stimuli

- Various researchers & groups have addressed this problem by creating their own meta-databases/lists of existing resources
- Take various forms, some more usable than others, overlap between meta-databases can be unclear
- None is perfect!
- Researchers may need to look through more than one to find the best resource for their purposes

ManyFaces meta-database guide

- Aims:
 - Making stimulus sets more easily accessible
 - Broadening the use of stimulus sets



ManyFaces meta-database guide

- Process:
 - Compiled list of face stimulus meta-databases & lists
 - Excluded ones without any unique resources or with more broken than usable links
 - Noted:
 - stimulus types
 - available information about stimulus sets
 - user friendliness
 - overlap vs uniqueness with other lists

ManyFaces meta-database guide

- Face Image Meta Database (Workman & Chatterjee)

fimdb SEARCH TOOLS +

Create New DB

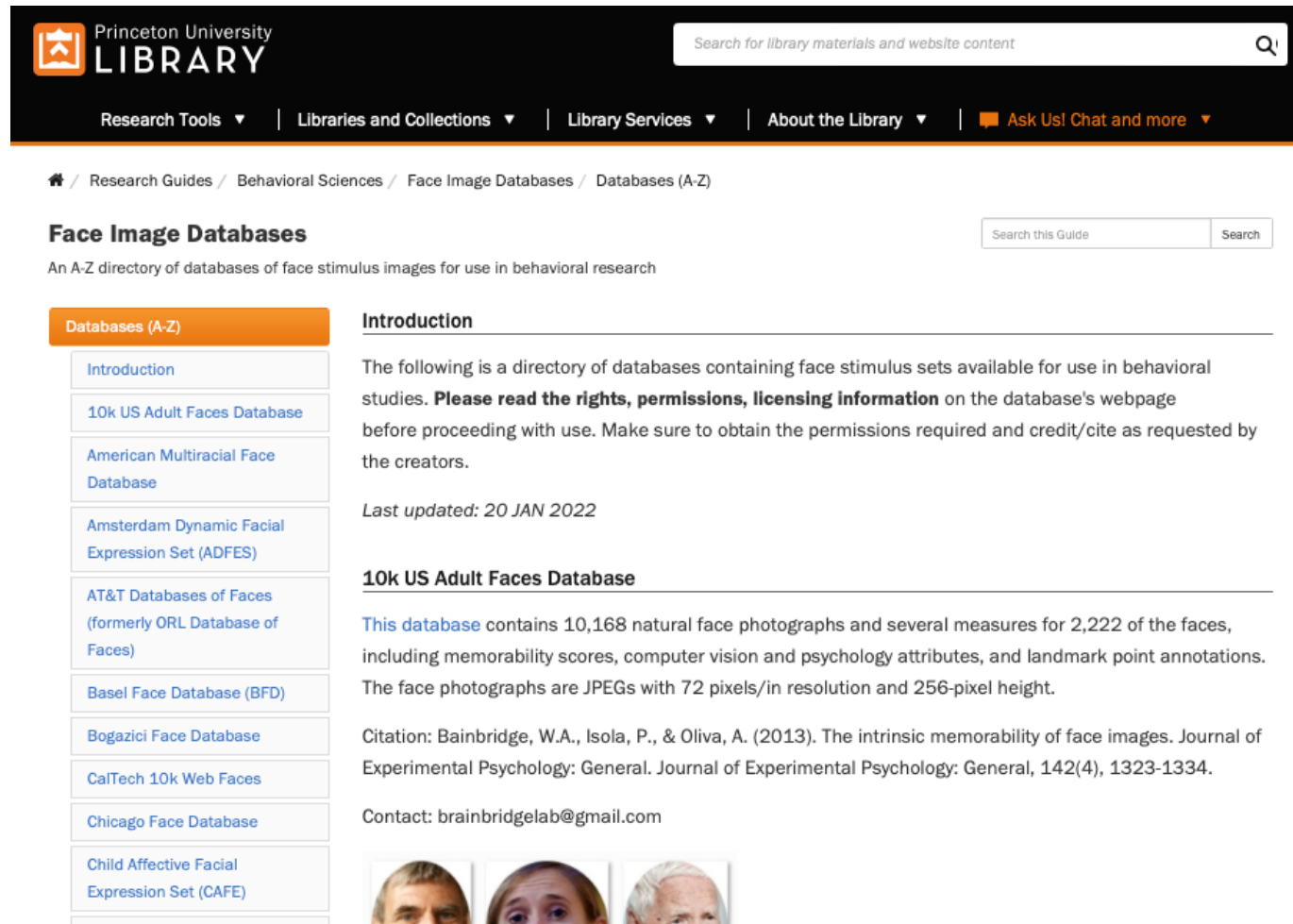
SQL Command: SELECT * FROM `fimdb_MySQL`;

Export Search Results (CSV)

SOURCE	ACRNYM	LINK	CATEGORY	IMGS	SETS	nIMcat	SUBS	F	M	nVWPTS	NEU	INEU	>1ETH	>1AGE	META	RSTRINS	NOTES	REFS
ChatLa b Facial Anomal y Databa se	CFAD	https://cliffordworkman.com/research/	Posed	4341	1	14	163	94	69	6	14	0	1	1	1	0	Pre- and post-corrective tx with and without gray scaling and lumina nce 6/j.mecorrection; 21.100 tip.20063	
10k US Adult Faces Databa se		https://wilmarabainbridge.com/facememory2.html	Wild	10168	1	6	10168	5806	4362				1	1	1	1	Faculty 10.1037/a0033872	
3D Face Alignm ent in the Wild	3DFAW	http://mhug.disi.unitn.it/work/3dfaw/	Posed		3								1	1		1	Faculty	

ManyFaces meta-database guide

- Face Image Meta Database
(Workman & Chatterjee)
- Face Image Databases
(Testerman, Princeton Library)



The screenshot shows the Princeton University Library website. At the top is a search bar with the text "Search for library materials and website content". Below the search bar is a navigation menu with links: "Research Tools", "Libraries and Collections", "Library Services", "About the Library", and "Ask Us! Chat and more". The main content area is titled "Face Image Databases" and includes a sub-header "An A-Z directory of databases of face stimulus images for use in behavioral research". On the left is a sidebar with a list of databases: "Introduction", "10k US Adult Faces Database", "American Multiracial Face Database", "Amsterdam Dynamic Facial Expression Set (ADFES)", "AT&T Databases of Faces (formerly ORL Database of Faces)", "Basel Face Database (BFD)", "Bogazici Face Database", "CalTech 10k Web Faces", "Chicago Face Database", and "Child Affective Facial Expression Set (CAFE)". The main content area has an "Introduction" section with text about the directory and a "10k US Adult Faces Database" section with details about the database, including a citation and contact information. At the bottom of the main content area are three small images of faces.

Princeton University LIBRARY

Search for library materials and website content

Research Tools | Libraries and Collections | Library Services | About the Library | Ask Us! Chat and more

Research Guides / Behavioral Sciences / Face Image Databases / Databases (A-Z)

Face Image Databases

An A-Z directory of databases of face stimulus images for use in behavioral research

Databases (A-Z)

- Introduction
- 10k US Adult Faces Database
- American Multiracial Face Database
- Amsterdam Dynamic Facial Expression Set (ADFES)
- AT&T Databases of Faces (formerly ORL Database of Faces)
- Basel Face Database (BFD)
- Bogazici Face Database
- CalTech 10k Web Faces
- Chicago Face Database
- Child Affective Facial Expression Set (CAFE)

Introduction

The following is a directory of databases containing face stimulus sets available for use in behavioral studies. **Please read the rights, permissions, licensing information** on the database's webpage before proceeding with use. Make sure to obtain the permissions required and credit/cite as requested by the creators.


Last updated: 20 JAN 2022

10k US Adult Faces Database

This database contains 10,168 natural face photographs and several measures for 2,222 of the faces, including memorability scores, computer vision and psychology attributes, and landmark point annotations. The face photographs are JPEGs with 72 pixels/in resolution and 256-pixel height.

Citation: Bainbridge, W.A., Isola, P., & Oliva, A. (2013). The intrinsic memorability of face images. *Journal of Experimental Psychology: General*. *Journal of Experimental Psychology: General*, 142(4), 1323-1334.

Contact: brainbridgelab@gmail.com



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Unpublished resources

Future directions

ManyFaces meta-database guide

- Face Image Meta Database
(Workman & Chatterjee)
- Face Image Databases
(Testerman, Princeton Library)
- Face Stimulus & Tool Collection
(Stolier)

FSTC: Face stimulus and tool collection

This is ongoing, *please* continue to send any recommendations to me (email, twitter, etc.)!
Thanks to many colleagues for contributions as we maintain this.

Below, you will find two main sections:

- face stim sets (all kinds)
- face stim tools (morph, averaging, real to cg scanning)

Face stimulus sets

Top quality /most prominent options:

*NOTE: Read descriptions! Many databases have many variations of their stim, by angle, eye gaze, social category, trait evaluation, etc. that may not be in the image! Also, these example images were all taken from public websites and articles. Please let me know right away if they should not have been public, and should be taken down here as well. Further, I am trying to collect publicly available data about the stim - let me know if you find perception ratings of any! E.g., attractiveness, age, gender, trustworthiness, etc.

- **The Chicago Face Database:** "The Chicago Face Database was developed at the University of Chicago by Debbie S. Ma, Joshua Correll, and Bernd Wittenbrink. The CFD is intended for use in scientific research. It provides high-resolution, standardized photographs of male and female faces of varying ethnicity between the ages of 17-65. Extensive norming data are available for each individual model. These data include both physical attributes (e.g., face size) as well as subjective ratings by independent judges (e.g., attractiveness). Detailed information about the construction of the database and the available norming data can be found in Ma, Correll, & Wittenbrink (2015)."

Comes with trait ratings and extra data on perception of the faces!



Finding the right stimuli

Meta-database guide



Unpublished resources

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- Face Image Meta Database
(Workman & Chatterjee)
- Face Image Databases
(Testerman, Princeton Library)
- Face Stimulus & Tool Collection
(Stolier)
- Face Recognition list of databases
(Grgic & Delac)

FACE RECOGNITION HOMEPAGE



DATABASES

When benchmarking an algorithm it is recommendable to use a standard test data set for researchers to be able to directly compare the results. While there are many databases in use currently, the choice of an appropriate database to be used should be made based on the task given (aging, expressions, lighting etc). Another way is to choose the data set specific to the property to be tested (e.g. how algorithm behaves when given images with lighting changes or images with different facial expressions). If, on the other hand, an algorithm needs to be trained with more images per class (like LDA), Yale face database is probably more appropriate than FERET.

Read more:

R. Gross, Face Databases, Handbook of Face Recognition, Stan Z. Li and Anil K. Jain, ed., Springer-Verlag, February 2005, 22 pages
[link](#)

Testing protocols:

[Face Image ISO Compliance Verification Benchmark Area](#) - [FVC-onGoing](#) is a web-based automated evaluation system developed to evaluate biometric algorithms. Algorithms submitted to the Face Compliance Verification to ISO standard (FICV) [benchmark area](#) are required to check the compliance of face images to ISO/IEC 19794-5 standard. To the best of our knowledge this is the first available benchmark that directly assesses the accuracy of algorithms to automatically verify the compliance of face images to the ISO standard, in the attempt of semi-automating the document issuing process.

P. Jonathon Phillips, A. Martin, C.I. Wilson, M. Przybocki, An Introduction to Evaluating Biometric Systems, IEEE Computer, Vol. 33, No. 2, February 2000, pp. 56-63
[download here](#), 407 kB

A. J. Mansfield, J. L. Wayman, Best Practices in Testing and Reporting Performance of Biometric Devices, NPL Report CMSC 14/02, August 2002
[download here](#), 406 kB

K. Delac, M. Grgic, S. Grgic, Independent Comparative Study of PCA, ICA, and LDA on the FERET Data Set, International Journal of Imaging Systems and Technology, Vol. 15, Issue 5, pp. 252-260
[download here](#), 412 kB

Here are some face data sets often used by researchers:

[The Color FERET Database, USA](#)

ManyFaces meta-database guide

Meta-databases & lists of publicly available/requestable face stimulus sets

compiled by ManyFaces

Name	Link	Type	Types of stimuli	Information available	User friendliness	Uniqueness vs overlap
Face Image Meta Database (fIMDb)	https://clffwrkmn.net View paper	searchable meta-database	2D & 3D images Emotional & neutral Standardized & variable/naturalistic Mostly real faces (some AI, some manipulated) Mostly static images Resources span ethnicity & age	Includes number of unique photosets, number of individual targets, gender breakdown, total number of images, total number of viewpoints, metadata (e.g., ratings) availability, whether multiple ethnicities and/or age groups included Example stimuli visible when hovering over	Pros Very thorough, very large number of stimulus sets Searchable based on various attributes - e.g., metadata availability, expression, viewpoints, inclusion of multiple ethnicities New stimulus sets can be suggested for inclusion Can see the full list if no	Includes largest number of stimulus sets Encompasses what is included in the below lists, except where noted



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Meta-database guide

Unpublished resources

Future directions

Unpublished resources

- The stimuli you need may exist but not be shared publicly
- How might you find these?



Unpublished resources

- Stimulus set information:
 - Static vs dynamic
 - 2D vs 3D
 - Standardised vs variable
 - Expression(s)
 - Photo angle(s)
 - Associated self-report or face measurement data
 - Age range, gender balance, ethnicities included
 - Information needed to share the stimuli



Future directions

- All extant lists & meta-databases have pros & cons
- Our guide summarises these to aid usability
- Our unpublished stimulus set guide will make more resources accessible
- A future master meta-database could improve on existing ones
- Suggestions for functionality or what information about each stimulus set would make a future meta-database most useful? Tell us!





Thank you!

