Face Stimulus Meta-Databases

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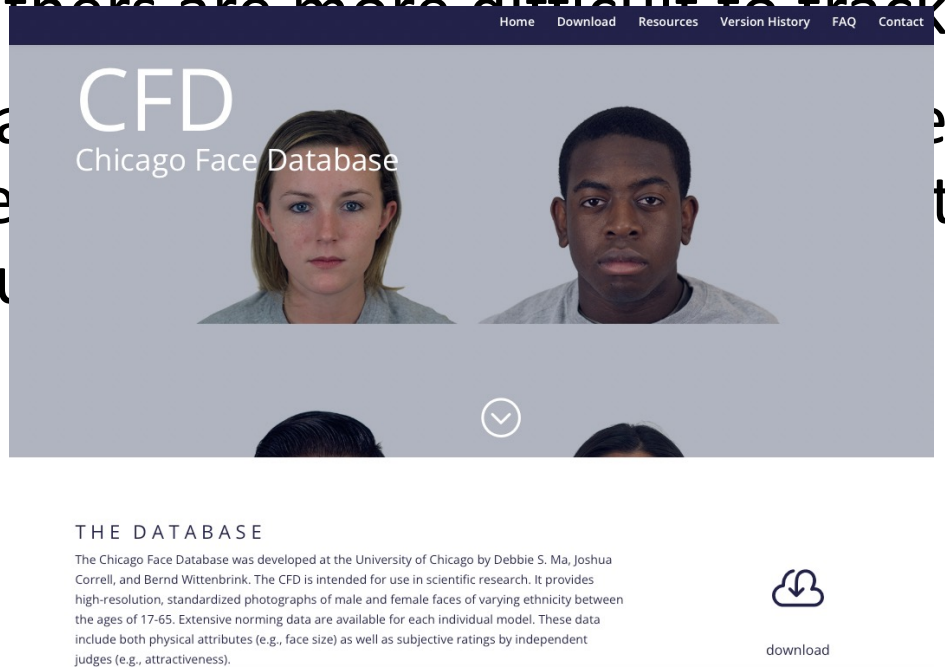
Finding the right stimuli

- 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 th

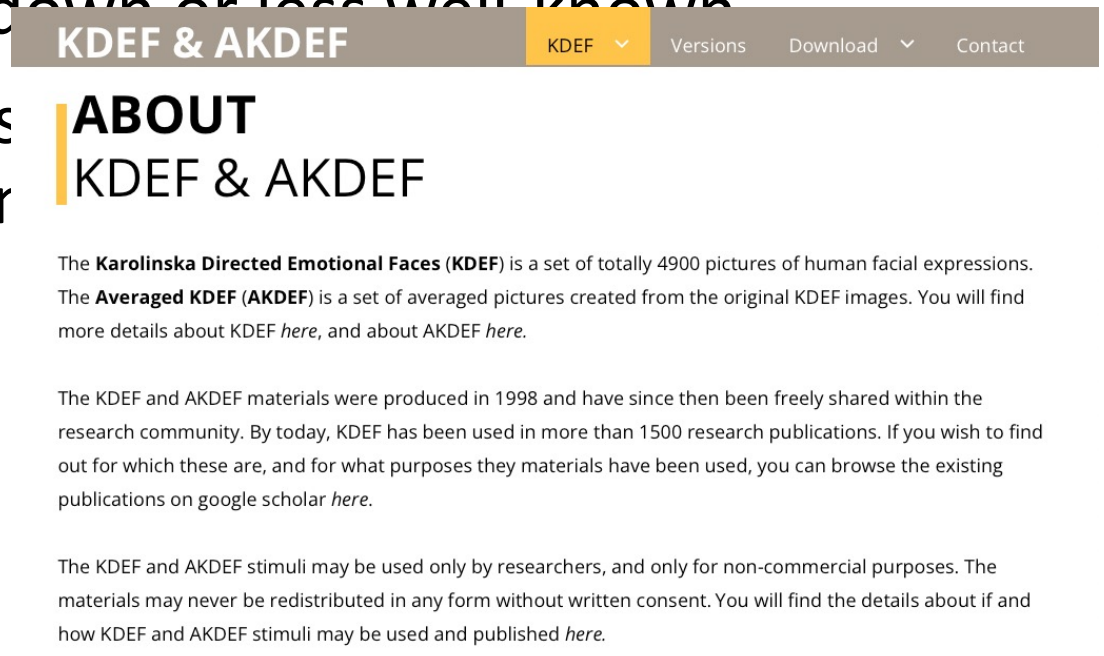
SCface
esearch Lab London Set
Gigic et al. (2011)
FACES
al. (2018)
DeBruine & Jones (2017)

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
- Ca… …ets re… …t r… pu…



Ma et al. (2015)



Lundqvist et al. (1998)

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

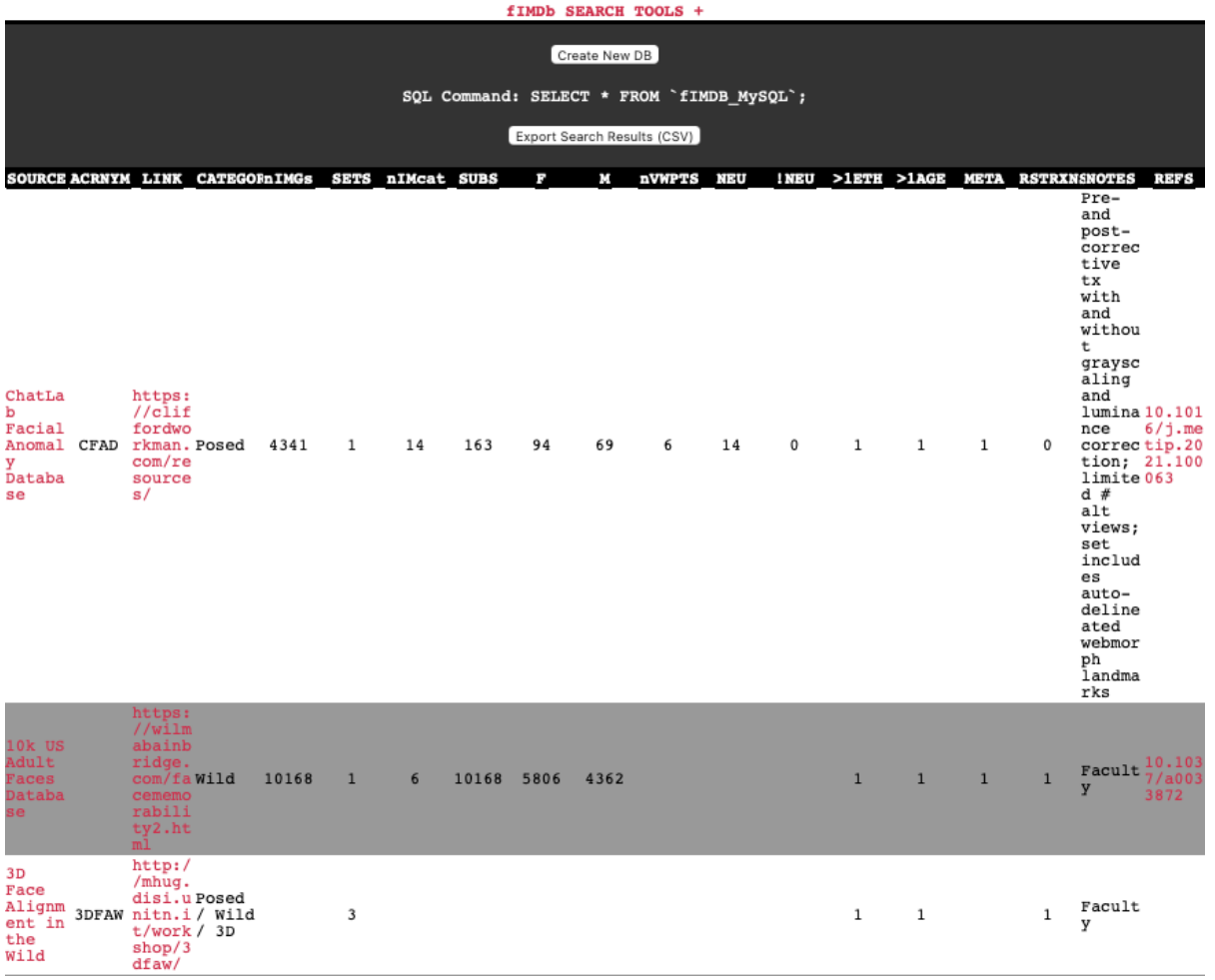
- Aims:
  - Making stimulus sets more easily accessible
  - Broadening the use of stimulus sets

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

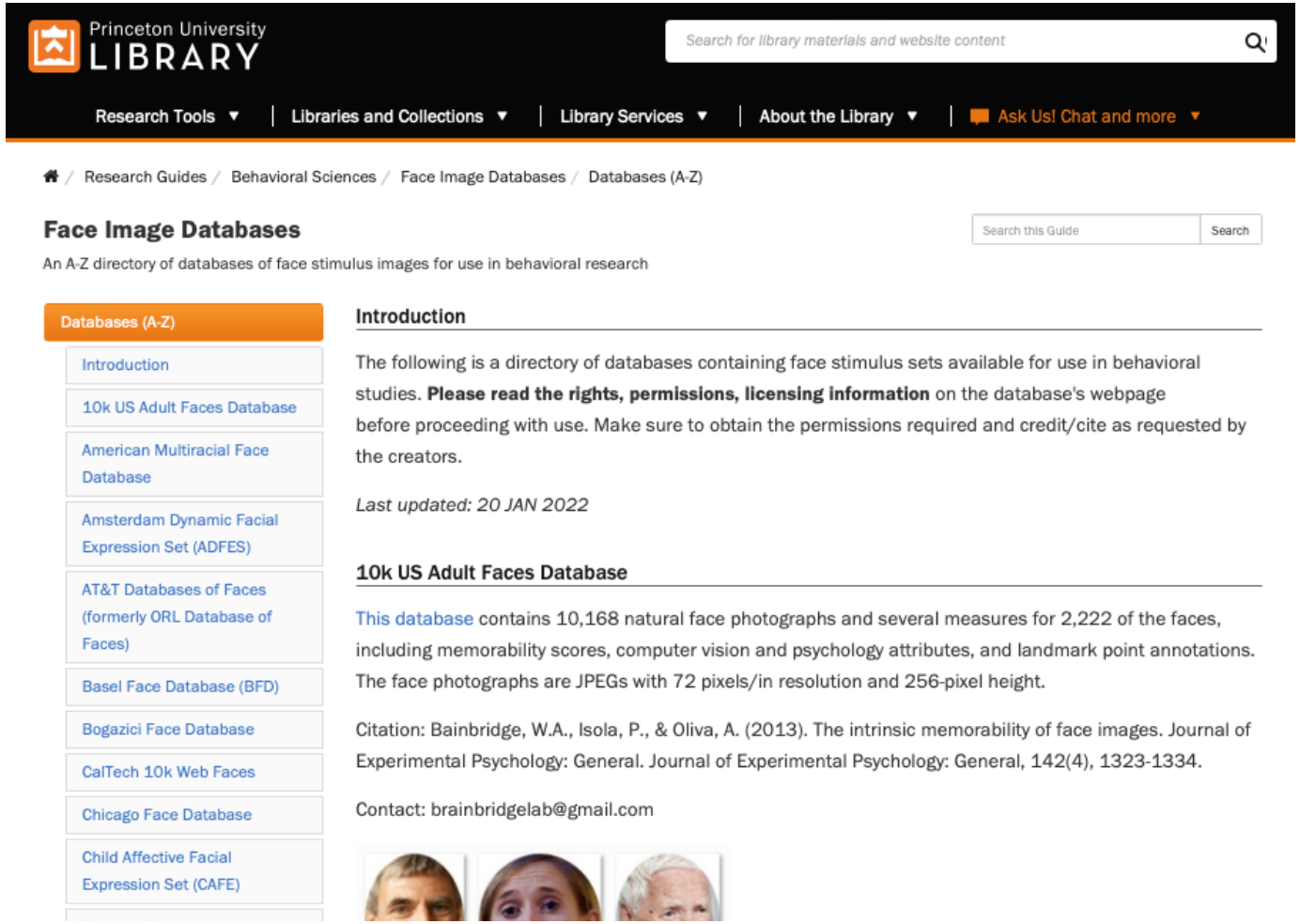
SQL Command: SELECT * FROM `fIMDB_MySQL`;

Export Search Results (CSV)

SOURCE	ACRNYM	LINK	CATEGO	nIMGs	SETS	nIMcat	SUBS	F	M	nVWPTS	NEU	!NEU	>1ETH	>1AGE	META	RSTRXNS	NOTES	REFS
ChatLab Facial Anomaly Database	CFAD	https://cliffordworkman.com/resources/	Posed	4341	1	14	163	94	69	6	14	0	1	1	1	0	Pre- and post-corrective tx with and without grayscaling and luminance correction; limited # alt views; set includes auto-delineated webmorph landmarks	10.1016/j.metip.2021.100063
10k US Adult Faces Database		https://wilmabainbridge.com/facememorability2.html	Wild	10168	1	6	10168	5806	4362				1	1	1	1	Faculty	10.1037/a0033872
3D Face Alignment in the Wild	3DFAW	http://mhug.disi.unitn.it/workshop/3dfaw/	Posed / Wild / 3D		3								1	1		1	Faculty	

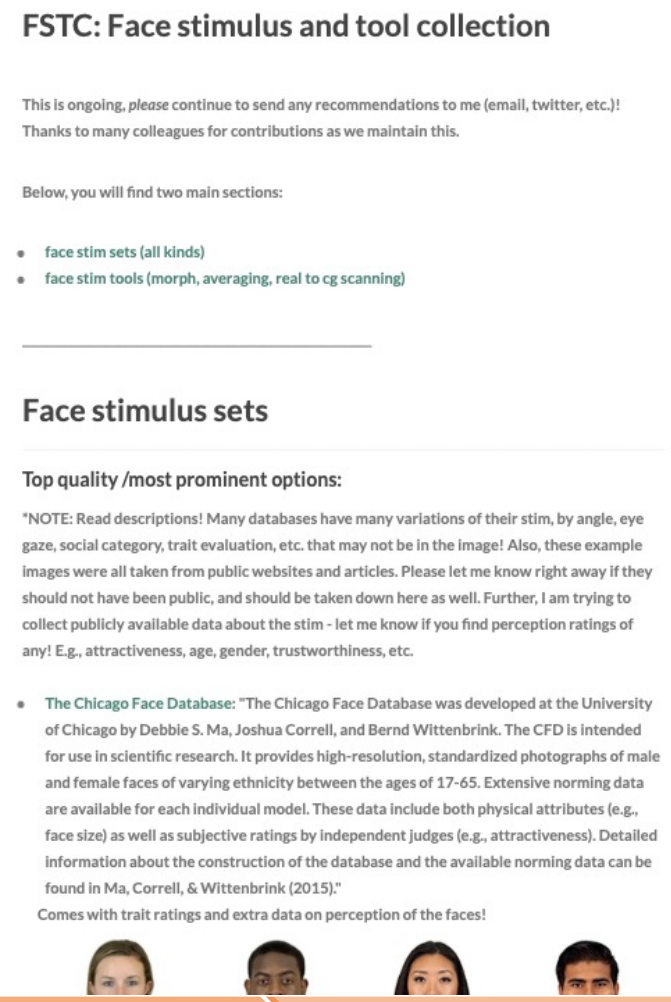
ManyFaces meta-database guide

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



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

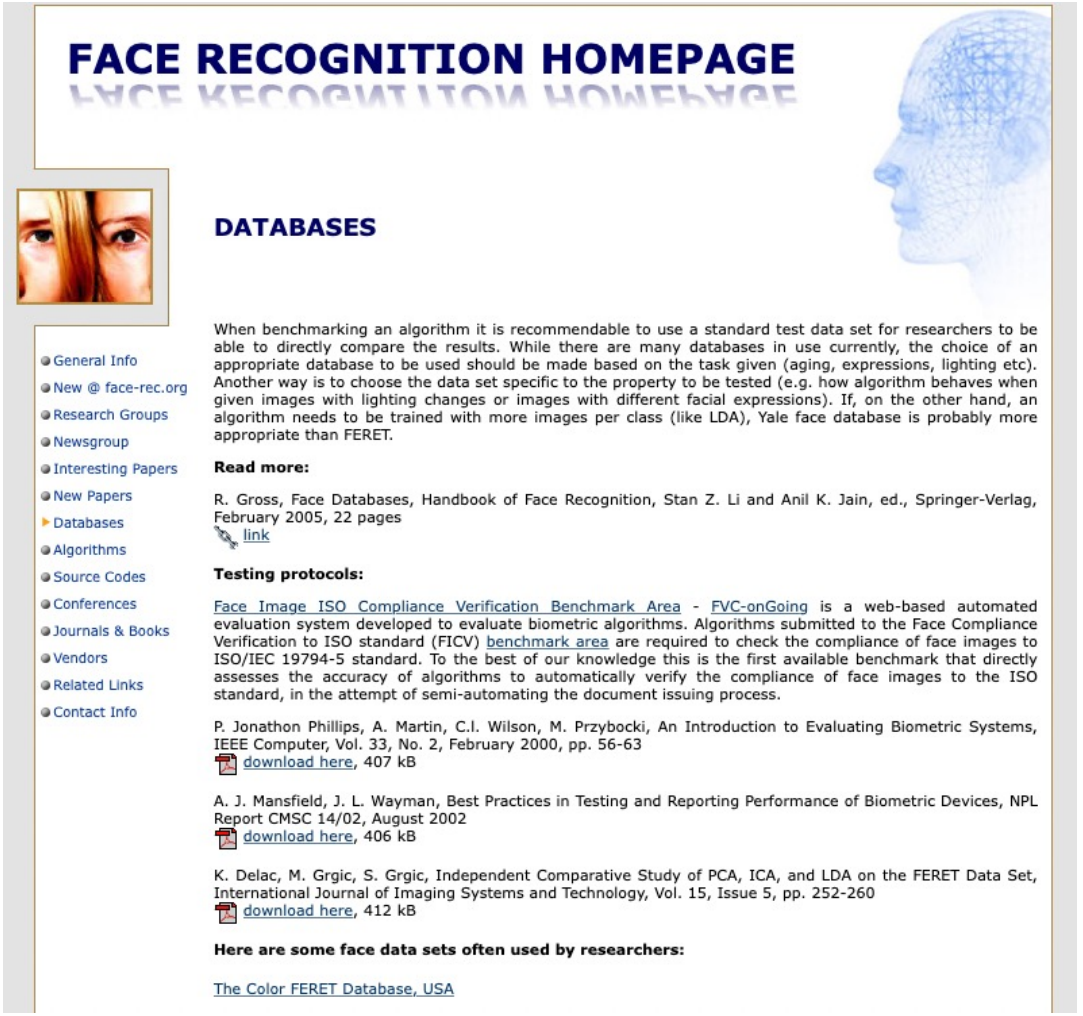
Top quality /most prominent options:

*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!

ManyFaces meta-database guide

- 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

- General Info
- New @ face-rec.org
- Research Groups
- Newsgroup
- Interesting Papers
- New Papers
- Databases
- Algorithms
- Source Codes
- Conferences
- Journals & Books
- Vendors
- Related Links
- Contact Info

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

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!