

1. Title of Database: Wilkes Pet Image Dataset

2. Sources:

(a) Creators

Anthony Kapolka, (570)408-4847, kapolka@wilkes.edu
Sofya Chepushtanova (Софья Чепуштанова),
(570) 408-4868, sofya.chepushtanova@wilkes.edu
Dept of Math and CS, Wilkes University, Wilkes Barre, PA 18766

with students:

Corey Smithmyer ('16), Abigail Sanders ('17), Mark Roche ('18),
Michael Walton Jr ('18), Justin Bodnar ('19),
and Simon Chu (初城羽) ('20).

(b) Donor of database

Anthony Kapolka, (570)408-4847, kapolka@wilkes.edu

(c) Date received

Version 1.0 Oct 1, 2017

3. Past Usage:

SURVEY OF IMAGE CLASSIFICATION METHODS
USING AN ANIMAL IMAGE DATASET,
Corey Smithmyer, Abigail Sanders, Mark Roche,
Anthony Kapolka, Sofya Chepushtanova,
Presented at 71st Annual Eastern Colleges Science Conference,
Wilkes University, Wilkes-Barre, PA, April 1st, 2017.

Our work: (1) identified animal faces
(2) predicted (a) animal species
(b) type of ears
(c) color of nose
(d) number of visible eyes
(e) image focus

These results are in preparation.

This dataset is currently being used for machine learning projects
and coursework at Wilkes University.

4. Relevant Information Paragraph:

Unlike typical animal datasets curated from posts on the
Internet, these 2000 jpeg photographs were taken from a

veterinarian's electronic medical records, collected during the normal course of patient care. Animals visiting a veterinary office are often distressed, having endured the journey from home to a strange location, so this dataset differs from those typically composed of owner selected images. Because some animals are visible injured, these images may be disturbing. Obviously, no animals were harmed during their examination.

All images were anonymized. Largely this mean obscuring names and addresses that were visible on collar tags.

Image names in this dataset reflect attributes hand tagged during data preparation.

Tags contained in the filename can be parsed as follows:

```
0288c2bokstUH.jpg
0288 c 2 bo kstUH
-----
\      \ \ \ \ \Descriptive Tags
\      \ \ \ \ \Breed
\      \ \ \ \ \Visible Eyes
\      \ \ \ \ \Species
\      \ \ \ \ \Image number
```

Individual tags are described in Sections 6 & 7, below.

Additionally, internal XMP metadata replicates those tags and includes additional information. All images share identical data for three tags:

```
Xmp.xmp.dbName is set to Wilkes Pet
Xmp.xmp.dbVersion is set to the current release version
Xmp.xmp.Contact is set to kapolka@wilkes.edu
```

Each image has its own specific values for three other tags:

```
Xmp.xmp.Tags gives a list of the tags (matching the filename)
```

and a hand tagged bounding box around the face of the animal, represented as a top left and a bottom right point.

Xmp.xmp.FaceTopLeft
Xmp.xmp.FaceBottomRight

They were generated by sweeping out the minimum box containing the top of the head (including ears) and the bottom of the chin.

This face bounding box is ONLY available in the image metadata.

Consult the example program `metaread.py` as an example. Sample output of that program for image 288 is:

Database Name : Wilkes Pet
Database Version : 1.0
Contact Information: kapolka@wilkes.edu
Image Tags : c2bokstUH

FaceTopLeft Coordinate : (230, 32)
FaceBottomRight Coordinate: (1244, 852)

5. Number and Size of Instances

Of the 2000 images, variance in image size is noted:

IMAGE SIZE	NUMBER
5152 x 3864	89
3648 x 2736	555
2560 x 1920	1
1600 x 1200	17
1280 x 960	1338

Each image has been retained in the highest resolution available. All images are oriented horizontally.

6. Number of Attributes

Four principle attribute groups exist.

Species: 5 values {c,d,f,g,r}
Eyes: 4 values {0,1,2,4}
Breed: 105 values (see list below)

Additionally, images were coded with 30 other descriptive tags.

7. For Each Attribute:

All attributes are category labels, abbreviated as indicated in the following distribution tables.

The first letter after the image number identifies the species.

SPECIES	# IMAGES	PERCENTAGE
c (cat)	1139	56.95%
d (dog)	849	42.45%
f (ferret)	6	0.30%
g (guinea pig)	3	0.15%
r (rabbit)	3	0.15%

This attribute provides learners a relatively balanced two category classification with low noise from the three additional categories.

The next category label is an integer indicating the number of eyes visible in the image.

EYES	# IMAGES	PERCENTAGE
0	21	1.05%
1	137	6.85%
2	1841	92.05%
4	1	0.05%

This attribute provides a two category classification problem with a dominant category and low noise from the additional categories.

BREED

Next is a two letter abbreviation for animal breed. The dataset includes 105 distinct breed tags; these have been assigned by human inspection and some error is likely. Please report any corrections for inclusion in subsequent dataset updates.

Descriptions of each breed can be found at:

Dogs, the American Kennel Club,
<http://www.akc.org/dog-breeds/>
Cats, the Cat Fanciers' Association,
<http://www.cfa.org/Breeds.aspx>
Guinea Pigs, the Guinea Pig Hub
<http://www.guineapighub.com/guinea-pig-breeds.html>

Breeds for ferrets and rabbits are not given.

Tag	#	%age	Full Name
MI	840	42.00%	Mixed Breed
--	9	0.45%	Unknown (ferrets and rabbits)
Ab	2	0.10%	Abyssinian

ad	1	0.05%	Anatolian Shepherd Dog
Ae	1	0.05%	American Eskimo Dog
af	2	0.10%	Affenpinscher
Af	2	0.10%	American Foxhound
ak	4	0.20%	Akita
Al	63	3.15%	American Longhair
Am	1	0.05%	American
am	1	0.05%	Alaskan Malamute
as	381	19.05%	American Shorthair
As	20	1.00%	American Staffordshire Terrier
at	1	0.05%	Australian Terrier
Aw	1	0.05%	American Water Spaniel
Bb	1	0.05%	Basset Fauve de Bretagne
Bc	4	0.20%	Border Collie
Bd	4	0.20%	Bernese Mountain Dog
Bf	20	1.00%	Bichon Frise
bg	13	0.65%	Beagle
bh	5	0.25%	Basset Hound
bi	5	0.25%	Birman
BM	4	0.20%	Bullmastiff
bn	3	0.15%	Beauceron
Bn	1	0.05%	Boston Terrier
bo	86	4.30%	Bombay
Bo	1	0.05%	Boerboel
br	1	0.05%	Burmilla
BU	3	0.15%	Bulldog
bu	1	0.05%	Burmese
bx	13	0.65%	Boxer
bz	1	0.05%	Borzoi
cb	1	0.05%	Chesapeake Bay Retriever
cc	2	0.10%	Cane Corso
ci	39	1.95%	Chihuahua
ck	2	0.10%	Cavalier King Charles Spaniel
cl	1	0.05%	Catahoula Leopard Dog
Co	3	0.15%	Collie
CS	8	0.40%	Cocker Spanie
cs	1	0.05%	Chinese Shar-pei
ct	1	0.05%	Cairn Terrier
da	1	0.05%	Dogo Argentino
dl	1	0.05%	Dalmatian
Dp	4	0.20%	Doberman Pinscher
ds	9	0.45%	Dachshund
ec	1	0.05%	English Cocker Spaniel
em	1	0.05%	Egyptian Mau
Es	2	0.10%	English Springer Spaniel
et	1	0.05%	English Toy Spaniel

fb	2	0.10%	French Bulldog
fr	2	0.10%	Flat-Coated Retriever
fz	1	0.05%	Finnish Spitz
gi	1	0.05%	Glen of Imaal Terrier
Gp	1	0.05%	Great Pyrenees
gr	16	0.80%	Golden Retriever
Gs	31	1.55%	German Shepherd Dog
hr	1	0.05%	Harrier
hv	4	0.20%	Havanese
Is	1	0.05%	Irish Setter
jc	1	0.05%	Japanese Chin
ke	1	0.05%	Keeshond
ko	19	0.95%	Korat
la	41	2.05%	Lhasa Apso
lc	2	0.10%	Lowchen
lr	75	3.75%	Labrador Retriever
mf	3	0.15%	Mastiff
ml	17	0.85%	Maltese
ms	1	0.05%	Miniature Schnauzer
nf	1	0.05%	Norwegian Forest Cat
nl	2	0.10%	Newfoundland
nt	5	0.25%	Norfolk Terrier
Nt	5	0.25%	Norwich Terrier
oe	1	0.05%	Old English Sheepdog
pd	10	0.50%	Poodle
pe	2	0.10%	Persian (includes Himalayans)
pg	8	0.40%	Pug
pk	1	0.05%	Pekingese
pm	13	0.65%	Pomeranian
pn	3	0.15%	Papillon
po	1	0.05%	Pointer
pq	1	0.05%	Portuguese Podengo Pequeno
rb	36	1.80%	Russian Blue
rm	1	0.05%	Ragamuffin
rt	7	0.35%	Rat Terrier
Rt	7	0.35%	Russell Terrier
rw	19	0.95%	Rottweiler

Sb	2	0.10%	St. Bernard
sb	1	0.05%	Siberian
Sf	6	0.30%	Staffordshire Bull Terrier
Sh	5	0.25%	Siberian Husky
Si	4	0.20%	Shiba Inu
sl	5	0.25%	Silky Terrier
sm	8	0.40%	Siamese
ss	3	0.15%	Shetland Sheepdog
Ss	1	0.05%	Standard Schnauzer
ST	5	0.25%	Shih Tzu
Sw	2	0.10%	Spanish Water Dog
sw	7	0.35%	Soft Coated Wheaten Terrier
sx	1	0.05%	Sphynx
ta	1	0.05%	Turkish Angora
tk	2	0.10%	Tonkinese
wh	1	0.05%	Whippet
wm	2	0.10%	Weimaraner
ws	1	0.05%	Welsh Springer Spaniel
ww	13	0.65%	West Highland White Terrier
yt	14	0.70%	Yorkshire Terrier

DESCRIPTIVE TAGS

The remainder of the tag field are ad hoc descriptive tags. Effort has been made to completely tag all images having the appropriate attributes but omissions may have occurred. Again, please report corrections.

Tag	#	%age	Description
A	37	1.85%	All (Full body picture)
b	155	7.75%	brown nose
B	14	0.70%	blind
c	52	2.60%	curly hair
C	24	1.20%	caged
E	126	6.30%	eyes mostly shut
e	13	0.65%	multicolored eyes
f	638	31.90%	floppy ears
g	92	4.60%	grey nose
H	1523	76.15%	short hair
I	53	2.65%	injured
k	890	44.50%	black nose
l	445	22.25%	long snout
L	15	0.75%	long tail
m	47	2.35%	messy hair
M	5	0.25%	tied mouth
n	326	16.30%	multicolored nose

O	483	24.15%	out of focus
o	1	0.05%	overbite
p	537	26.85%	pink nose
P	90	4.50%	profile picture
r	399	19.95%	long hair
s	1511	75.55%	short snout
S	2	0.10%	short tail
t	270	13.50%	tongue visible
T	173	8.65%	teeth visible
U	1318	65.90%	upright ears
u	8	0.40%	underbite
V	143	7.15%	cropped
y	140	7.00%	young animal

Nose color tags {b, e, g, k, p} are mutually exclusive.
Together these provide another classification axis:

b	155	7.75%	brown
e	15	0.75%	multicolor
g	1523	76.15%	grey
k	445	22.25%	black
p	90	4.50%	pink
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Total	2000	100%	

Similarly, ear type {f, U} are also mutually exclusive.
Almost all images have these tags:

f	638	31.90%	floppy
U	1318	65.90%	upright
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Total	1956	97.80%	