MAMMOGRAPHIC IMAGE ANALYSIS SOCIETY
Mammographic Database

Version 1.21
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Credits

Organiser: J Suckling

Truth-Data: C R M Boggis and Ian Hutt

Co-Workers: S Astley, D Betal, N Cerneaz, D R Dance, S-L Kok, J Parker, I Ricketts, J Savage, E Stamatakis and P Taylor.

Reference for citation

J Suckling et al (1994) "The Mammographic Image Analysis Society Digital Mammogram Database" Exerpta Medica. International Congress Series 1069 pp375-378.

Information on images and truth-data

Image filename consist of the prefix **mdb**, followed by a three-digit serial number, **l** or **r** for left and right breast respectively, and **s**, **m**, **l**, **x** to denote the image dimensions.

All images are in PGM format that consists of the following:

1. A "magic number" for identifying the file type. A pgm image's magic number is the two characters "P5".
2. Whitespace
3. A width, formatted as ASCII characters in decimal.
4. Whitespace.
5. A height, again in ASCII decimal.
6. Whitespace.
7. The maximum gray value (=255), again in ASCII decimal.
8. Whitespace.
9. A raster of Height rows, in order from top to bottom. Each row consists of Width gray values, in order from left to right. Each gray value is a number from 0 through Maxval, with 0 being black and Maxval being white. Each gray value is represented in pure binary by either 1 or 2 bytes. If the Maxval is less than 256, it is 1 byte. Otherwise, it is 2 bytes. The most significant byte is first.

   A row of an image is horizontal. A column is vertical. The pixels in the image are square and contiguous (http://netpbm.sourceforge.net/doc/pgm.html).

This document lists the films in the MIAS database and provides appropriate details as follows:

1st column: MIAS database reference number.

2nd column: Character of background tissue:

F - Fatty
G - Fatty-glandular
D - Dense-glandular

3rd column: Class of abnormality present:

CALC - Calcification
CIRC - Well-defined/circumscribed masses
SPIC - Spiculated masses
MISC - Other, ill-defined masses
ARCH - Architectural distortion
ASYM - Asymmetry
NORM - Normal

4thcolumn: Severity of abnormality;

B - Benign
M - Malignant

5 & 6th columns: x,y image-coordinates of centre of abnormality.

7th column: Approximate radius (in pixels) of a circle enclosing the abnormality.

Notes

1) The list is arranged in pairs of films, where each pair represents the left (odd numbered IDs) and right (even numbered IDs) mammograms of a single individual.

2) When calcifications are present, centre locations and radii apply to clusters rather than individual calcifications.

3) In some cases calcifications are widely distributed throughout the image rather than concentrated at a single site. In these cases centre locations and radii are inappropriate and have been omitted.

mdb001lm G CIRC B 1815 1116 790
mdb002rl G CIRC B 3091 1262 277

mdb003ll D NORM
mdb004rl D NORM

mdb005ll F CIRC B 647 1163 122
CIRC B 786 1255 107
mdb006rl F NORM

mdb007ll G NORM
mdb008rl G NORM

mdb009ll F NORM
mdb010rm F CIRC B 2509 975 135

mdb011ll	F	NORM				
mdb012rl	F	CIRC	B	2378	1467	162
mdb013ll	G	MISC	B	1574	1923	127
mdb014rl	G	NORM				
mdb015lm	G	CIRC	B	3571	1359	275
mdb016rm	G	NORM				
mdb017ls	G	CIRC	B	2407	943	192
mdb018rs	G	NORM				
mdb019ll	G	CIRC	B	2021	1864	197
mdb020rl	G	NORM				
mdb021ll	G	CIRC	B	612	1224	197
mdb022rm	G	NORM				
mdb023ll	G	CIRC	M	2837	1405	117
mdb024rl	G	NORM				
mdb025ll	F	CIRC	B	1886	1948	318
mdb026rl	F	NORM				
mdb027ll	F	NORM				
mdb028rl	F	CIRC	M	2953	1999	224
mdb029ll	G	NORM				
mdb030rm	G	MISC	B	1505	1785	174
mdb031ll	G	NORM				
mdb032rl	G	MISC	B	1243	1798	267
mdb033ls	D	NORM				
mdb034rs	D	NORM				
mdb035ls	D	NORM				
mdb036rs	D	NORM				
mdb037ls	D	NORM				
mdb038rs	D	NORM				
mdb039ls	D	NORM				
mdb040rs	D	NORM				
mdb041ll	G	NORM				
mdb042rl	G	NORM				
mdb043ls	G	NORM				
mdb044rs	G	NORM				

mdb045lm G NORM
mdb046rm G NORM

mdb047lm G NORM
mdb048rm G NORM

mdb049ll G NORM
mdb050rl G NORM

mdb051ll G NORM
mdb052rm G NORM

mdb053ls D NORM
mdb054rs D NORM

mdb055lm G NORM
mdb056rm G NORM

mdb057ll D NORM
mdb058rl D MISC M 2774 2079 110

mdb059ls F CIRC B
mdb060rs F NORM

mdb061ls D NORM
mdb062rs D NORM

mdb063lm D MISC B 1967 1163 133
mdb064rm D NORM

mdb065lm D NORM
mdb066rm D NORM

mdb067ll D NORM
mdb068rl D NORM

mdb069ll F CIRC B 1739 1101 177
mdb070rl F NORM

mdb071lm G NORM
mdb072rm G ASYM M 2140 2011 115

mdb073ls G NORM
mdb074rs G NORM

mdb075lm F ASYM M 2982 850 92
mdb076rm F NORM

mdb077ll F NORM
mdb078rl F NORM

mdb079lm F NORM
mdb080rm F CIRC B 3615 1344 81

mdb081ll G ASYM B 2007 1220 525
mdb082rl G NORM

mdb083ll G ASYM B 891 1428 152
mdb084rl G NORM

mdb085lm G NORM
mdb086rm G NORM

mdb087lm F NORM
mdb088rm F NORM

mdb089lm G NORM
mdb090rm G ASYM M 2021 1035 198

mdb091lm F CIRC B 2090 1696 82
mdb092rm F ASYM M 1562 1382 175

mdb093lm G NORM
mdb094rm G NORM

mdb095ll F ASYM M 2181 1118 116
mdb096rl F NORM

mdb097ll F ASYM B 1302 1702 137
mdb098rl F NORM

mdb099lm D ASYM B 1473 1834 93
mdb100rm D NORM

mdb101lm D NORM
mdb102rm D ASYM M 2369 1412 152

mdb103lm D NORM
mdb104rm D ASYM B 2751 1645 203

mdb105ll D ASYM M 1229 1318 392
mdb106rl D NORM

mdb107ll D ASYM B 2597 1653 446
mdb108rl D NORM

mdb109ll D NORM
mdb110rl D ASYM M 2502 2590 205

mdb111ll D ASYM M 2414 1275 428
mdb112rl D NORM

mdb113ls	G	NORM				
mdb114rs	G	NORM				
mdb115ll	G	ARCH	M	2240	1096	468
mdb116rl	G	NORM				
mdb117ll	G	ARCH	M	2417	1175	337
mdb118rl	G	NORM				
mdb119ll	G	NORM				
mdb120rl	G	ARCH	M	3162	1659	319
mdb121ll	G	ARCH	B	1849	1221	348
mdb122rl	G	NORM				
mdb123lm	G	NORM				
mdb124rm	G	ARCH	M	1729	1609	135
mdb125ll	D	ARCH	M	2322	2054	242
mdb126rl	D	ARCH	B	2015	2585	93
mdb127lm	G	ARCH	B	2317	1069	194
mdb128rm	G	NORM				
mdb129ll	D	NORM				
mdb130rl	D	ARCH	M	2002	2469	112
mdb131lx	F	NORM				
mdb132rx	F	CIRC	B	1499	3043	211
		CIRC	B	1587	2709	73
mdb133lx	F	NORM				
mdb134rx	F	MISC	M	1736	2173	199
mdb135lx	F	NORM				
mdb136rx	F	NORM				
mdb137ll	D	NORM				
mdb138rl	D	NORM				
mdb139lx	F	NORM				
mdb140rx	F	NORM				
mdb141lx	F	CIRC	M	3591	1832	117
mdb142rx	F	CIRC	B	2104	2662	104
mdb143lx	F	NORM				
mdb144rx	F	MISC	B	674	3117	119
		MISC	M	2491	2799	108

mdb145lx D SPIC B 2726 2631 197
mdb146rx D NORM

mdb147lx F NORM
mdb148rx F SPIC M 2220 2745 699

mdb149lx F NORM
mdb150rx F ARCH B 2005 2647 249

mdb151lx F NORM
mdb152rx F ARCH B 2704 1349 195

mdb153lx F NORM
mdb154rx F NORM

mdb155ll F ARCH M 2032 1046 380
mdb156rl F NORM

mdb157lm F NORM
mdb158rm F ARCH M 1951 915 353

mdb159ll F NORM
mdb160rl F ARCH B 2133 1206 245

mdb161lm D NORM
mdb162rm D NORM

mdb163ll D ARCH B 1574 817 202
mdb164rl D NORM

mdb165ls D ARCH B 2073 903 168
mdb166rs D NORM

mdb167ll F ARCH B 2740 1550 141
mdb168rl F NORM

mdb169lm D NORM
mdb170rm D ARCH M 2288 1118 331

mdb171ll D ARCH M 2622 1102 248
mdb172rl D NORM

mdb173ll F NORM
mdb174rl F NORM

mdb175lm G SPIC B 2795 1344 132
mdb176rm G NORM

mdb177ls G NORM
mdb178rs G SPIC M 1810 880 280

mdb179ls	D	SPIC	M	2168	1152	268
mdb180rs	D	NORM				
mdb181lm	G	SPIC	M	1563	1052	217
mdb182rm	G	NORM				
mdb183ll	F	NORM				
mdb184rl	F	SPIC	M	1712	1943	458
mdb185ls	G	NORM				
mdb186rs	G	SPIC	M	2114	1237	191
mdb187lm	G	NORM				
mdb188rm	G	SPIC	B	1741	1448	247
mdb189ll	G	NORM				
mdb190rl	G	SPIC	B	1724	1302	127
mdb191ls	G	SPIC	B	2177	1128	165
mdb192rs	G	NORM				
mdb193ll	D	SPIC	B	2364	850	528
mdb194rl	D	NORM				
mdb195ll	F	SPIC	B	631	2155	107
mdb196rl	F	NORM				
mdb197lm	D	NORM				
mdb198rm	D	SPIC	B	1761	800	373
mdb199lm	D	SPIC	B	820	1543	125
mdb200rm	D	NORM				
mdb201ll	D	NORM				
mdb202rl	D	SPIC	M	1122	1123	149
mdb203ll	F	NORM				
mdb204rl	F	SPIC	B	2614	2005	84
mdb205ll	F	NORM				
mdb206rl	F	SPIC	M	3410	1876	71
mdb207lm	D	SPIC	B	2370	1262	76
mdb208rm	D	NORM				
mdb209ll	G	CALC	M	2126	1842	348
mdb210rl	G	NORM				
mdb211lm	G	CALC	M	1423	1698	53
mdb212rm	G	CALC	B			

mdb213ls G CALC M 2193 940 183
mdb214rs G CALC B

mdb215ll D NORM
mdb216rl D CALC M *** see note 2

mdb217ll G NORM
mdb218rl G CALC B 1694 1275 35

mdb219ll G CALC B 3136 1439 119
mdb220rl G NORM

mdb221lm D NORM
mdb222rm D CALC B 2502 1482 70

mdb223ls D CALC B 2043 846 116
CALC B 2231 1116 27
mdb224rs D NORM

mdb225lm D NORM
mdb226rm D CALC B 1770 1927 31
CALC B 2011 1757 102
CALC B 1325 951 33

mdb227lm G CALC B 1981 993 36
mdb228rm G NORM

mdb229ll F NORM
mdb230rl F NORM

mdb231ll F CALC M 2265 1665 179
mdb232rl F NORM

mdb233lm G CALC M *** see note 2
mdb234rm G NORM

mdb235ll D NORM
mdb236rl D CALC B 912 2247 58

mdb237lm F NORM
mdb238rm F CALC M 1998 986 70

mdb239ll D CALC M 3133 1833 160
CALC M 3347 1523 103
mdb240rl D CALC B 1752 776 95

mdb241ls D CALC M 2827 565 155
mdb242rs D NORM

mdb243lm D NORM
mdb244rm D CIRC B 1940 1209 209

mdb245ls F CALC M *** see note 2
mdb246rs F NORM

mdb247ll F NORM
mdb248rl F CALC B 1805 1836 42

mdb249lm D CALC M 2146 1154 194
CALC M 2671 1276 256
mdb250rm D NORM

mdb251lm F NORM
mdb252rm F CALC B 2743 1318 94

mdb253ll D CALC M 2368 2185 112
mdb254rl D NORM

mdb255ll F NORM
mdb256rl F CALC M 2272 1750 149

mdb257ll D NORM
mdb258rl D NORM

mdb259ll D NORM
mdb260rl D NORM

mdb261ls D NORM
mdb262rs D NORM

mdb263lm G NORM
mdb264rm G MISC M 2487 691 147

mdb265lm G MISC M 2104 1351 242
mdb266rm G NORM

mdb267ll F MISC M 2036 2427 227
mdb268rl F NORM

mdb269lm G NORM
mdb270rm G CIRC M 430 1649 291

mdb271ll F MISC M 1193 2391 274
mdb272rl F NORM

mdb273ll F NORM
mdb274rx F MISC M 2630 3542 495

mdb275ll G NORM
mdb276rl G NORM

mdb277lm G NORM

mdb278rm G NORM

mdb279ll G NORM
mdb280rx G NORM

mdb281lm D NORM
mdb282rm D NORM

mdb283lm D NORM
mdb284rm D NORM

mdb285lm D NORM
mdb286rm D NORM

mdb287ls D NORM
mdb288rs D NORM

mdb289ls D NORM
mdb290rs D CIRC B 2799 1502 181

mdb291ll G NORM
mdb292rl G NORM

mdb293ll F NORM
mdb294rl F NORM

mdb295ll D NORM
mdb296rl D NORM

mdb297ll F NORM
mdb298rl F NORM

mdb299ll F NORM
mdb300rl F NORM

mdb301lm F NORM
mdb302rm F NORM

mdb303lm F NORM
mdb304rm F NORM

mdb305lm F NORM
mdb306rm F NORM

mdb307ll F NORM
mdb308rl F NORM

mdb309ll F NORM
mdb310rl F NORM

mdb311ll F NORM

mdb312rl F MISC B 3158 2389 81

mdb313ll F NORM
mdb314rl F MISC B 3447 1277 158

mdb315ll D CIRC B 1900 1317 372
mdb316rl D NORM

mdb317ls D NORM
mdb318rs D NORM

mdb319ll D NORM
mdb320rl D NORM

mdb321lm D NORM
mdb322rm D NORM