

Japanese Society of Radiological Technology Imaging S...

MINIJSRT_DATABASE

miniJSRT_database was created for beginners who want to start deep learning research on medical images.

This database is created by image processing based on the "standard digital image database [thoracic tumor image]" of the Japan Society of Radiological Technology. For information on the original image, please refer to the following URL.

<http://db.jsrt.or.jp/eng.php>

Please note the following points when using.


- We do not recommend using it for purposes such as performance testing or benchmark testing of commercial products.
- The miniJSRT_database also contains unreliable annotation data. We do not recommend using it for the purpose of actual work or evaluation of clinical effectiveness.
- Citations of papers for using this database are as follows.

[1] Shiraishi J, Katsuragawa S, Ikezoe J, Matsumoto T, Kobayashi T, Komatsu K, Matsui M, Fujita H, Kodera Y, and Doi K.: Development of a digital image database for chest radiographs with and without a lung nodule. : Receiver operating characteristic analysis of radiologists' detection of pulmonary nodules. AJR 174; 71-74, 2000

■ For practice

>Practice1	Training dataset 1 (png and jpg formats)
	Description: Images are in png and jpeg file format with matrix size 2048x2048. The 10 images included in the "Standard Digital Image Database [Chest Mass Shadow Images]" of the Japan Society of Radiological Technology are included in this dataset in their respective formats. Please use the file for practicing basic operations such as input/output.
	Download (2048×2048, Gray:8bit): Practice database 1

>Practice2	Training data set 2 (DICOM format)
	<p>Description:</p> <p>The image is in DICOM file format with a matrix size of 2048x2048.</p> <p>This data set contains 10 images in DICOM format, which are included in the "Standard Digital Image Database [Thoracic Mass Shadow Images]" of the Japan Society of Radiological Technology.</p> <p>Please use the file for practicing basic operations such as input/output.</p>
	<p>Download (2048×2048, dicom):</p> <p>Practice database 2</p>

■Classification	
>Directions01	Image direction of chest X-ray image (Up/Down/Left/Right classification)
	<p>Description:</p> <p>The image is in png file format with a matrix size of 128x128.</p> <p>0°(Up), 90°(Right), 180°(Down), 270°(Left) Rotating. This dataset contains 247×4=988 images.</p> <p>Of the 247 images in each direction, 237 images are divided into folders for training and 10 images for evaluation, and the train and test folders consist of 4 folders, Up, Down, Right, and Left.</p>
	<p>Image example:</p> 
	<p>Download (128 x 128, Gray: 8bit):</p> <p>Directions01</p> <p>Download (128 x 128, RGB Color: 24bit):</p> <p>Directions01 (RGB)</p> <p>Download (128 x 128, Index Color: 8bit):</p> <p>Directions01 (Index)</p>

>Gender01

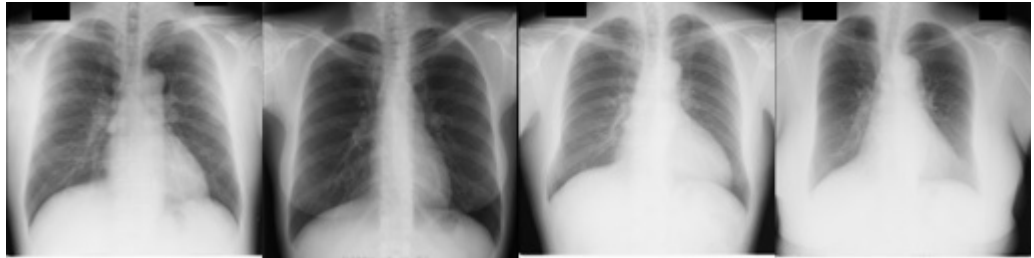
Gender classification of chest X-ray images (2-class classification of male/female)

Description:

The image is a png file format with a matrix size of 256x256.

This is a dataset of 247 images recorded in the "Standard Digital Image Database [Chest Mass Shadow Images]" of the Japan Society of Radiological Technology, classified by gender. There are 68 images in the male folder in the train folder, 86 images in the female folder, 51 images in the male folder in the test folder, and 42 images in the female folder.

Image example:



Download (256 x 256, Gray: 8bit):

[Gender01](#)

Download (256 x 256, RGB Color: 24bit):

[Gender01 \(RGB\)](#)

Download (256 x 256, Index Color: 8bit):

[Gender01 \(Index\)](#)

■ Segmentation

>Segmentation01

Lung area extraction from chest X-ray image (lung area: 255/outside lung: 0)

Description:

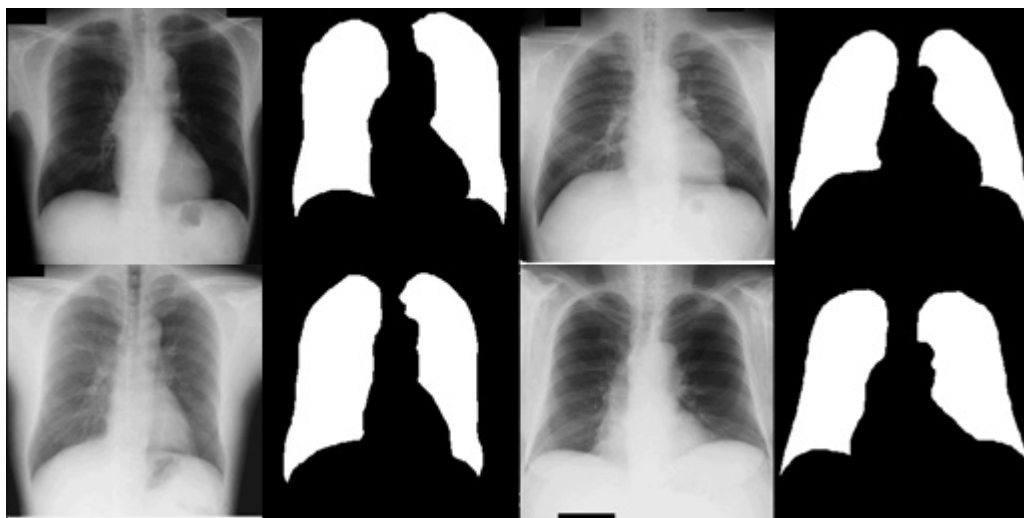
Chest X-ray images are in png file format.

The label image (teaching image) is an image in which the lung region has a pixel value of 255 and a pixel value of 0, and is recorded in png file format.

We use 60 images recorded in the "Standard Digital Image Database [Chest Mass Shadow Images]" of the Japan Society of Radiological Technology. The org_train folder contains 50 training images, the label_train folder contains 50 training label images, the org_test folder contains 10 evaluation images, and the label_test folder contains 10 evaluation label images. .

* There is no medical basis for the definition and determination of the lung area of the label data, as we have not received medical supervision.

Image example:



Download(256×256, Gray:8bit):

[Segmentation01](#)

Download(256×256,RGB Color:24bit):

[Segmentation01\(RGB\)](#)

Download(256×256,Index Color:8bit):

[Segmentation01\(Index\)](#)

Download(64×64, Gray:8bit):

[Segmentation01_smallDownload](#)

(64×64, RGB Color:24bit):

[Segmentation01_small\(RGB\)](#)

Download(64×64, Index Color:8bit):

[Segmentation01_small\(Index\)](#)

>Segmentation02	Lung area extraction from chest X-ray images (lung area: 255/heart: 85/outside lung: 170/outside the body: 0)
	<p>Description:</p> <p>Chest X-ray images are in bmp file format.</p> <p>The label image (teacher image) is an image in which the pixel value of the lung area is 255, the heart area is 85, the lung area is 170, and the outside of the body is 0, and is recorded in png file format.</p> <p>We use 247 images recorded in the "Standard Digital Image Database [Chest Mass Shadow Images]" of the Japan Society of Radiological Technology. The org_train folder contains 199 training images, the label_train folder contains 199 training label images, the org_test folder contains 48 evaluation images, and the label_test folder contains 48 evaluation label images. . Folders with subscripts of _s are datasets with 24 images.</p> <p>* There is no medical basis for the definition and determination of the lung area of the label data, as we have not received medical supervision.</p>
	<p>Download (256×256):</p> <p>Segmentation02</p>

■Regression	
>Age01	Age estimation (regression)
	<p>Explanation:</p> <p>The image is a jpeg (RGB 24bit) file format with a matrix size of 2048×2048.</p> <p>We use 247 images recorded in the "Standard Digital Image Database [Chest Mass Shadow Images]" of the Japan Society of Radiological Technology. Image file names and ages are recorded as annotation data in CSV file format.</p>
	<p>Download (2048×2048,RGB:24bit):</p> <p>XPage01_RGB</p>

■ Super Resolution	

>SuperResolution01	<div> <h2>Restoration from pseudo-low-resolution images</h2> </div> <div> <p>Description: The image is a png file format with a matrix size of 256x256. We use 247 images recorded in the "Standard Digital Image Database [Chest Mass Shadow Images]" of the Japan Society of Radiological Technology. The low-resolution image is a chest X-ray image reduced to 256×256, and the width and height are reduced to 1/3 size by the average pixel method, and then bicubic interpolation (4×4 It is an enlarged image in the neighborhood area). * Low-resolution images are pseudo-low-resolution images intentionally created by image processing. It is not something that can confirm the original super resolution or high resolution.</p> </div> <div> <p>Image example:</p> </div> <div> </div> <div> <p>Download (256 x 256, Gray: 8bit): SuperResolution01 Download (256 x 256, RGB Color: 24bit): SuperResolution01 (RGB) Download (256 x 256, Index Color: 8bit): SuperResolution01 (Index)</p> </div>
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<div> <h2>■ Denoise</h2> </div>	
>Denoise01	<div> <h2>Noise reduction processing</h2> </div> <div> <p>Description: The image is a png file format with a matrix size of 256x256. It is divided in advance into 197 images for training and 50 images for evaluation, which are recorded in the "Standard Digital Image Database [Chest Mass Shadow Images]" of the Japan Society of Radiological Technology. A noise-added image is an image to which artificial noise has been added by image processing, and noise with an average of 0 and a standard deviation of 50 following a normal distribution has been added.</p> </div> <div> <p>Download (256x256, RGB:24bit): Denoise01</p> </div>

■ Auto Encoder

>AutoEncoder01 Unsupervised learning of left-right reversal detection

Description:

The image is a png file format with a matrix size of 256x256.

Images are in 256×256 png file format, and horizontally inverted images are in tif format.

Abnormal images are created by horizontally reversing 17 cases from the images recorded in the "Standard Digital Image Database [Thoracic Mass Shadow Images]" of the Japan Society of Radiological Technology. The horizontally flipped image is saved in the flip folder. Images in the normal direction are stored separately in normal200 and normal.

Download (256×256, RGB:24bit):

[AutoEncoder01](#)