Input image in 3dim is converted into 2D by gray scale preprocessing

Gray scale conversion

Filtering

Browse for an input image

|  |
| --- |
| CT scan image (jpg) |

2D image is undergoes for noise filtering by Gaussian filter

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| Filtered image(.fig) |

Masking the left and right lung region

Masking

Feature Extraction

Identified fissure is extracted for analysis

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| Segmented image(.fig) |

Masked image is split for fissure identification

Segmentation

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| --- |
| Binary image(.fig) |

CNN

Identification of normal or abnormal case

Analysis had done by set of training set and testing set over neural network

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| --- |
| Decision(.text) |

Fig: Architecture diagram

**Title:**

Prediction of pulmonary abnormalities using convolutional neural network

**Pseudo code (Gaussian filter)**

For one dimensional,

**F(x)=1/d\*sqrt (2\*pi)[e^-(x-mu)^2/2d^2]**

In one dimensional ,the center point is orgin.so mu is zero(mu= 0)

**F(x)=1/d\*sqrt (2\*pi)[e^-(x)^2/2d^2]**

For 2 dimensional,

**F(x, y) =1/(d\*sqrt (2\*pi))^2[e^-(x^2 + y^2)^2/2d^2]**

**F(x, y) =1/(2\*pi \*d^2)[e^-(x^2 + y^2)^2/2d^2]**

X -> 1 dimensional state

Y -> 2 dimensional state

d -> input percentage for filtering

Pi -> 3.14

Mu -> average of x

Evaluation metrices

Input image: CT scan image(.jpg)

Gray-scale image: jpg image of 3 dimensional is converted to 2 dimensional by converting to gray-scale

Filtered image: noise removal in gray image by gaussian filter