

RTE_SANDBOX

```
%=====
=====
%FORMAT DATA
%=====
=====

%WINE-----
-----
clear temp

temp = dataset(:,1);

dataset(:,14) = dataset(:,14)/100;

dataset(:,1) = [];

dataset(:,14) = temp;

%PARKINSONS-----
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dataset(1,:) = [ ];
dataset(:,1) = [ ];

clear temp

temp = dataset(:,17);

dataset(:, 17) = [ ];

dataset(:,23) = temp;

%=====
=====
%INITIALIZATION
%=====
=====

filename = "C:/Users/erdosfan/Desktop/Image_Research/External Training
Sets/ionosphere-data.txt";

dataset = csvread(filename);

N = size(dataset,2) - 1;

%APPLY FORMATTING IF NEEDED (SEE
ABOVE)-----
```

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                                RTE_SANDBOX
num_items = size(dataset,1);

num_training_items = ceil(num_items*.87);

training_rows = randperm(num_items,num_training_items); %we randomly select rows
from the dataset

training_dataset = dataset(training_rows,:);

testing_dataset = dataset;

testing_dataset(training_rows,:) = [];

%=====
%=====
%DEFININE FILTERS
%=====
%=====
threshold = .85;

filter_matrix = [];

num_filters = 0;

filter_dimension = 2*N;

while(num_filters < filter_dimension)

filter = randi([0 1],1,N);

filter(N+1) = 1;

num_correct = 0; %this is the number of correct answers

%we test the accuracy of the filters using the training dataset
temp_dataset = training_dataset;

temp_dataset = temp_dataset.*filter;

[accuracy output_matrix] = find_NN_dataset(temp_dataset,N);

if(accuracy > threshold)

num_filters = num_filters + 1
filter_matrix(num_filters,:) = filter;

endif

```

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endwhile

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%=====
=====
%APPLY FILTER
%=====
=====
final_output_matrix = [];

for i = 1 : filter_dimension

filter = filter_matrix(i,:);

temp_dataset = training_dataset.*filter;

[accuracy output_matrix] = find_NN_dataset(temp_dataset,N);

final_output_matrix(:,i) = output_matrix(:,N+1);

accuracy_vector(i) = accuracy;

endfor

%=====
=====
%CATEGORIZE RESULTS
%=====
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data_array = matrix2array(final_output_matrix);
[data_categories_array category_vec anchor_array H_final delta] =
optimize_categories_uneq_N(data_array,filter_dimension-1);
[global_accuracy local_accuracy] = test_category_accuracy(data_categories_array,
anchor_array, filter_dimension-1);
```