
```
% single sample perceptron with margin for linear classification where
% error function is the value of the misclassified sample
% input
% X:: normalised setup of two category linearly seprable class
% theta:: intial weight vectors
% b:: the margin parameter (scalar value)
% output
% weights :: if seprable correct weights
function weights = single_sample_perceptron_margin(X,theta,b)

nn= 0.5; % the ita factor

[m,d]=size(X);

limit = 10000 ; % limit in number of loops so if no convergence is found loop stil

for s=1:limit
    flag=1;
    % update step
    for i=1:m
        if X(i,:)*theta <= b
            theta = theta + nn*X(i,:)';
            flag=0;
        end
    end
    %break if no update occurs
    if flag
        break;
    end
end

%final_weights
weights=theta;
```

```

    Error using single_sample_perceptron_margin (line 13)
    Not enough input arguments.
```

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