

```
function optimal_stepsize = optimise_step(pyramid,h,X)
%% This function optimises the stepsize of a pyramid
% Input:  pyramid is a cells object containing the unquantised X_lists and Y_lists
% Output: optimal_stepsize is a float, a number indicating the optimal
% stepsize for the pyramid structure

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errors = [];
x = linspace(5,30,26);

for i = 5: 30
    quantised_pyramidi = quantpyramid(pyramid, i);
    decodedi= pyndec(quantised_pyramidi,h);
    standard_devi = std(X(:)-decodedi(:));
    errors = [errors, standard_devi];
end
X_quantised = quantise(X,17);
orig_error = std(X(:)-X_quantised(:));

plot(x, errors);
p = polyfit(x, errors, 1);
x1 = linspace(5,30,200);
p1 = polyfit(errors, x,1);

my_fit = polyval(p, x1);
hold on;
optimal_stepsize = polyval(p1,orig_error);
plot(optimal_stepsize,orig_error,'o');

plot(x1, my_fit);
my_text = strcat('\leftarrow optimal step size at ', string(optimal_stepsize));
text(optimal_stepsize,orig_error, '\leftarrow optimal step size');
hold off;

return

end
```