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                                calculate_average_feature_color
function data_array = calculate_average_feature_color(input_im,N,region_matrix,
prob_mat, cat_label, im_label)

    im_size = size(input_im);
    num_rows = im_size(1);
    num_cols = im_size(2);
    row_length = floor(num_rows/N);
    col_length = floor(num_cols/N);

    num_regions = max(region_matrix(:));

    index = 1;

    for region_ID = 1 : num_regions

        [x y] = find(region_matrix == region_ID);

        [num_instances temp] = size(x);

        for k = 1 : num_instances

            i = x(k);
            j = y(k);

            %this sets the minimum foreground score for inclusion in the database of
colors
            if(prob_mat(i,j) > 0.05)

                temp_im = input_im(1 + (i-1)*row_length : i*row_length, 1 + (j-1)*col_length
: j*col_length, 1 : 3);
                [avg_1 avg_2 avg_3] = ret_avg_color_vec(temp_im);

                data_array{index} = [avg_1 avg_2 avg_3 cat_label im_label region_ID];
                index = index + 1;

            endif

        endfor

    endfor

endfunction

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