Matlab List Comprehension with Cells

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Concatenate Numeric Values as String with Trimming

There is a list of numbers, combine (paste) to single string with some connector, trim each element to eliminate spaces.

```
rng(123,'philox')
ar_rand = rand([5,1]);
st_fl_rand = string(num2str(ar_rand));
st_untrimmmed = strjoin(st_fl_rand, "#");
cl_st_trimmmed = cellfun(@(x) strtrim(x), cellstr(st_fl_rand), 'UniformOutput', false);
st_trimmmed = strjoin(string(cl_st_trimmmed), "#");
disp(['st_untrimmmed:' st_untrimmmed]);
```

```
    "st_untrimmmed:"    "  0.53162#  0.60704#  0.31843#0.0016474#  0.65784"
```

```
disp(['st_trimmmed:' st_trimmmed]);
```

```
    "st_trimmmed:"    "0.53162#0.60704#0.31843#0.0016474#0.65784"
```

Find Index of Elements of String Cells in a larger String Cells

the function below returns the position of cl_st_param_keys in ls_st_param_key should only include in cl_st_param_keys strings that also exist in ls_st_param_key.

```
ls_st_param_key = {'fl_crra', 'fl_beta', ...
                   'fl_w', 'fl_r_save', ...
                   'fl_a_max', 'it_z_n', 'it_a_n'};

cl_st_param_keys = {'fl_w', 'fl_beta', 'it_z_n'};

cell2mat(cellfun(@(m) find(strcmp(ls_st_param_key, m)), ...
                 cl_st_param_keys, 'UniformOutput', false))
```

```
ans = 1×3
     3     2     6
```

Given Container of Arrays, Find Total Length of All Arrays for Selected Keys

```
cl_st_param_keys = {'fl_crra', 'fl_beta'};

param_tstar_map = containers.Map('KeyType','char', 'ValueType','any');
it_simu_vec_len = 5;

param_tstar_map('fl_crra') = linspace(1, 2, 5);
param_tstar_map('fl_beta') = linspace(0.94, 0.98, 10);
param_tstar_map('w') = linspace(1.1, 1.4, it_simu_vec_len);
param_tstar_map('r') = linspace(0.01, 0.04, it_simu_vec_len);

ar_it_array_len = cell2mat(cellfun(@(m) length(param_tstar_map(m)), ...
```

```
                            cl_st_param_keys, 'UniformOutput', false));

it_total_length = sum(ar_it_array_len);
disp(['ar_it_array_len: ' num2str(ar_it_array_len)])
```

```
ar_it_array_len: 5  10
```

```
disp(['it_total_length: ' num2str(it_total_length)])
```

```
it_total_length: 15
```

Given Container of Arrays, Find Min and Max of Each and Draw Random N sets

```
cl_st_param_keys = {'fl_crra', 'fl_beta'};

param_tstar_map = containers.Map('KeyType','char', 'ValueType','any');
it_simu_vec_len = 5;

param_tstar_map('fl_crra') = linspace(1, 2, 5);
param_tstar_map('fl_beta') = linspace(0.94, 0.98, 10);
param_tstar_map('w') = linspace(1.1, 1.4, it_simu_vec_len);
param_tstar_map('r') = linspace(0.01, 0.04, it_simu_vec_len);

rng(123);
it_simu_length = 20;
mt_param_rand = cell2mat(cellfun(@(m) ...
                            rand([it_simu_length,1]).*(max(param_tstar_map(m)) - min(param_tstar
                            + min(param_tstar_map(m)), ...
                            cl_st_param_keys, 'UniformOutput', false));

tb_rand_draws = array2table(mt_param_rand, 'VariableNames', cl_st_param_keys);

disp(tb_rand_draws);
```

fl_crra	fl_beta
1.5316	0.97337
1.607	0.97305
1.3184	0.94644
1.0016	0.97349
1.6578	0.94983
1.7505	0.97152
1.7407	0.94277
1.7108	0.94781
1.3542	0.97625
1.1479	0.95709
1.8834	0.94962
1.1274	0.96042
1.2132	0.96637
1.0676	0.94936
1.4318	0.96911
1.3791	0.97365
1.9399	0.94242
1.6369	0.96946
1.9791	0.95752

1.5709 0.96145