

HOME

PLOTS

APPS

EDITOR

PUBLISH

VIEW

New

Open

Save

Find Files

Compare

Print

Go To

Find

Insert

Comment

Indent

Breakpoints

Run

Run and Advance

Run Section

Advance

Run and Time

Search Documentation

Current Folder

Editor - /Users/simon/\_work/Teaching/2016\_06\_EMBL\_BIAS/BIAS2016\_MATLAB/mFiles/functions/fun\_msd\_at\_tau.m

Workspace

Directory

Script-editor

function msd\_tau = fun\_msd\_at\_tau(x,y,tau)

% fun\_msd\_vs\_tau FUNCTION

% GIVEN INPUT DATA 'X', 'Y' THIS FUNCTION RETURNS THE

% MEAN-SQUARED-DISPLACEMENT CALCULATED IN OVERLAPPING WINDOWS

% FOR THE FIXED TIMELAG VALUE 'tau'

% NB: THIS IS FOR A SINGLE TIMELAG ONLY BUT AVERAGED OVER THE ENTIRE TRACK

% 2016-06-03, sfn, created

%% --- INITIALIZE ---

N = length( x ); % number of postions determined

dr2 = zeros( 1, N - tau ); % initialize and speed up procedure

%% --- CALCULATE THE MSD AT A SINGLE TIMELAG ---

for t = 1 : N - tau

dx2 = ( x( t + tau ) - x( t ) ).^2; % squared x-displacement

dy2 = ( y( t + tau ) - y( t ) ).^2; % squared y-displacement

dr2( t ) = dx2 + dy2; % store the squared x-y-displacement for each postion

end

Command Window

Command-line

I ran the startup.m file, located in /Users/simon/Documents/MATLAB

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ans =

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Apps coursera.m figurePretty.m print2pdf.m

Mathworks Matlab R2009b cp.m keratocyte.m results

ccc.m dicty.m marathon\_pace.m startup.m

Variables