ANALYZING EMA DATA WITH MVIEW

A set of Matlab scripts developed by Mark Tiede at Haskins Labs

PRELIMINARIES

- Getting the data (including a palate contour, as the case may be)
- Add Mview to Matlab path

LOADING THE PALATE DATA AND LAUNCHING MVIEW

`load` *`name_of_palate_file`* (e.g. `load pal`)

Mview can be started with the following arguments (at least file name must be given):

a. File name '*file_name*'
b. Palate 'PALATE', *name_of_palate_data*
c. Various calculation procedures, e.g. lip aperture, distance to palate, etc.
   'DPROC', {'mdp_*name_of_procedure*'}
   Example procedures: 'mdp_LipAperture', 'mdp_PalDist', 'mdp_AbsVel', 'mdp_TTAngDist'
d. Trajectories to be displayed
   'MAP', {'*Name_of_trajectory*'}
   Trajectories:
   Audio
   Sensor Trajectories (position: e.g. TTPOSx, TTPOSy; velocity: vTTPOS; acceleration: aTTPOS, RMS: e.g. TTRMS)
   Derived trajectories (e.g. LA, TTPOSDist…)
e. Labelling function to be used:
   'LPROC', 'lp_*name_of_labelling_function*'
   Some labeling functions:
   lp_findgest: finds several gestural landmarks using velocity of the signal
   lp_findgestWin: same as above, but uses only velocity information within selected window
   lp_velex: sets a label at the nearest velocity extremum (minimum or maximum) relative to the release point
   lp_exportvals: exports formant and sensor values at labeled point

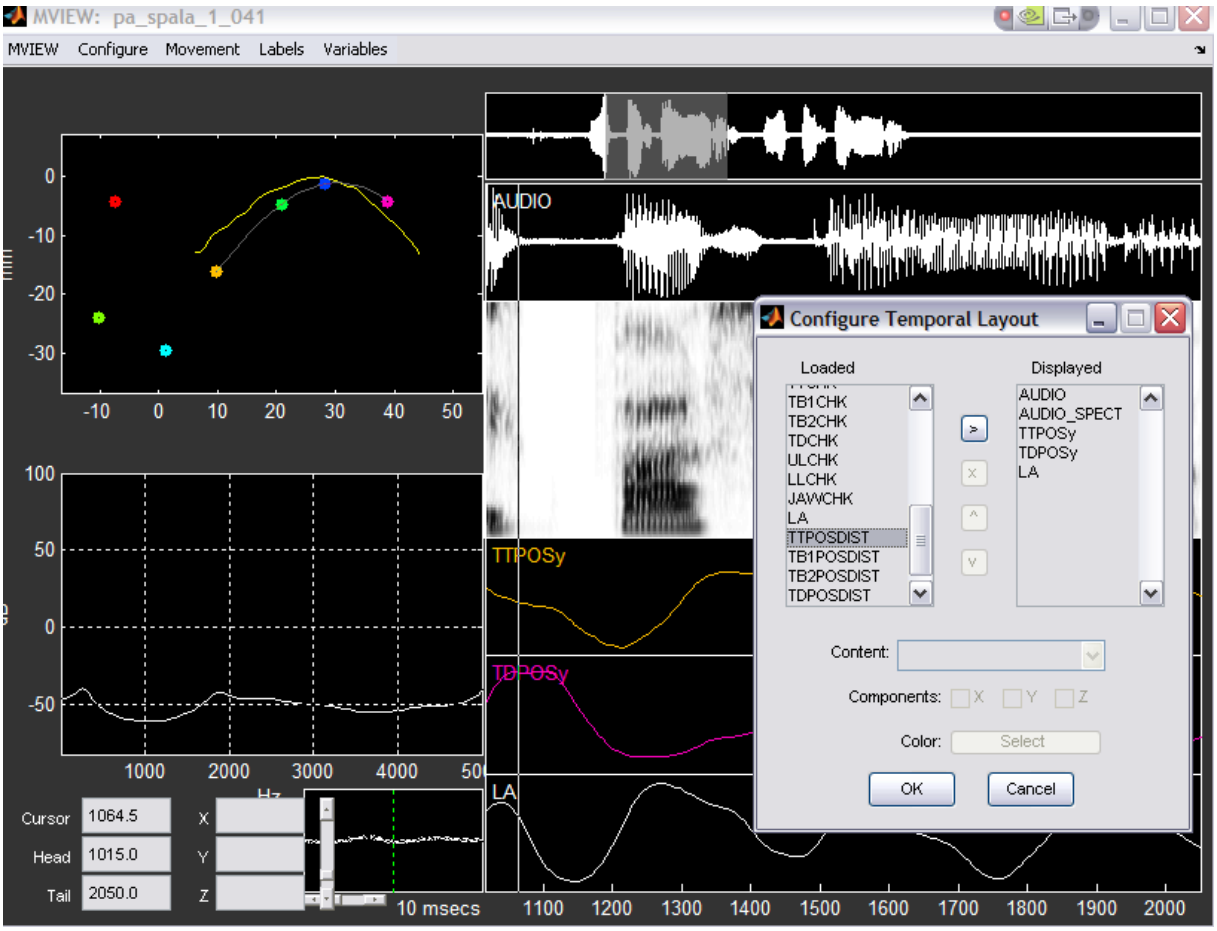
Example:

```
mview('pa_spala*', 'PALATE', pal, 'DPROC', {'mdp_LipAperture',
'mdp_PalDist'}, 'MAP', {'AUDIO', 'AUDIO_SPECT', 'TTPOSy', 'TDPOSy', 'LA'},
'LPROC', 'lp_findgestWin_sm')
```

MVIEW FIELDS

- Spatial display (top left): 2D display of sensor positions and palate trace (if loaded)
- Trajectory display (main field): 2 wave form panels, a spectrogram panel, movement of sensors specified in command

To select additional trajectories: Configure Menu > Temporal Layout



WORKING WITH THE DATA

- MVIEW Menu > Auto Update
- To zoom in: hold and drag the hairlines at both ends of the wave form in the top field
- To play sound: CTRL-P
- To save a configuration file: MVIEW > Save Configuration… <*give name*>
  The configuration setup is now saved in the workspace. To save for later use, use Matlab's *save* command:
  `save name_cfg name_cfg`
  This can then be loaded for future use:
  `load name_cfg`
  `Mview('file_name', 'CONFIG', name_cfg)`

NB: in this example the name of palate data is part of the configuration file, so separate configuration files need to be made for separate subjects (alternatively, the config file can be set up without palate data, and then palate should be loaded and called in the mview command).

- To change labeling function: Labels > Labeling Behavior > Select…

LABELING

For specifics on how each labeling function works, see respective function.

Example: `'lp_findgestWin'`

- Right-clicking on the desired location of the trajectory of interest will give the following labels:

```
GONS  - gestural onset (THRESH% of the range between the minimum
preceding PVEL and PVEL)
PVEL - the peak velocity preceding clicked point
NONS  - nucleus onset (THRESH% of the range between PVEL and MAXC)
MAXC  - closest V minimum to input OFFS (assumed to be maximum
constriction)
NOFFS - nucleus offset (THRESH% of the range between MAXC and
following peak velocity PV2)
PVEL2 - the peak velocity following clicked point
GOFFS - gestural offset (THRESH% of the range between PV2 and
following minimum)
```

- The labels can be dragged by mouse
- To delete labels: Labels > Edit Labels; CTRL-Y deletes all labels
- To change function parameters: CTRL-K

- For save/export options: see Variables menu
- Labels are exported in a text file with the extension .lab
  (Labels from multiple data files can be saved in the same .lab file; for this labeling function Mview "overwriting" actually appends to existing labels)

SOURCE	TRAJ	GONS (ms)	PVEL (ms)	NONS (ms)	MAXC (ms)	NOFFS (ms)	PVEL2 (ms)	GOFFS (ms)	…
pa_spala_1_041	TTPOS_Y	1225	1300	1355	1405	1415	1450	1455	…
	LA	1375	1400	1450	1465	1475	1510	1550	
	TTPOS_Y	1550	1595	1610	1620	1630	1665	1710	

- Labels are saved in Matlab's workspace (they need to be permanently saved using `savelabels` for future upload; `savelabels` creates a single *_lbl.mat file for each signal file)

- To read the labels again, the label file must be loaded into the workspace and then called for in the mview line

```
e.g.  load config_cfg
      load pa_spala_1_041_lbl
      mview('pa_spala_1_041', 'LABELS', pa_spala_1_041_lbl, 'CONFIG',
      config_cfg)
```

- To save labels from multiple files in a single mat-file:

```
e.g.  save labels
      load config_cfg
      load labels
      e.g. mview('pa_spala*', 'CONFIG', config_cfg)
```