

## Creating mpg movie files from your Matlab files

(1) Download the mpgwrite.mexglx file from the class webpage to use on lab machines.

There are different versions available. For Mac, the name is mpgwrite.mexmac, and for Windows, the name is mpgwrite.dll. You hopefully won't need to compile your own mpgwrite, but you could do so using the "mex" command in Matlab. The source code to do this is available on the Matlab File Exchange website. Ask Prof. Zebker or the TA if you need to do this.

(2) Put the mpgwrite.\* file in your current working directory in Matlab, so it knows where to look when you call it.

(3) Next, create your movie in Matlab. Sample code to do this is below. Since we will be using MPEG, use a frame size with a ratio of 1.5, i.e., 720 x 480. You can use other frame sizes, but that is standard. The default Matlab frames-per-second (fps) is 15. The default for most players is 30 fps. To compensate for this, you can copy your Matlab movie with each frame replicated to "slow down" the non-Matlab player speed.

```
% Sample matlab code with comments

for k=1:nframes,

    % Create and display your frame first
    imagesc(yourframe);
    axis(image);

    % Get your frame
    % There is also an im2frame command
    M(k*2-1) = getframe;    % load frame twice for 30
    frame per second mpg
    M(k*2) = getframe;

end;

% Save your color table for the mpgwrite command

map=colormap;

mpgwrite(M, map, 'morph.mpg');
```

However, it is usually better to make your mpg file at the end and use Matlab's less-compressed avi files for intermediate work:

```
% Save scenes from the movie as uncompressed avi files
% using movie2avi. Can be played with command movie
```

```
    movie2avi(M, 'file1.avi');
    % Don't forget to save your colormap
    save map map;
```

```
% You can then do clear all to free up more memory
% if needed. Then you can re-load your avi file, and
% save it as an mpg using mpgwrite
```

```
    clear all;
    load map;
    M=aviread('file1.avi');
    mpgwrite(M, map, 'file1.mpg');
```

If you do need to create your movie in sections, you can combine them using the cat command in Unix at the terminal prompt:

```
cat filename1.mpg filename2.mpg >> filename3.mpg
```

This is only acceptable if all frames are created with the same size and with the same color table. Video editing software may be able to combine different clips, but you are on your own to do this. You may use other video editing software to take a Matlab generated avi to be saved as an mpg, but you must note exactly what you used in your report.

Finally, you should burn the mpg file to a dvd directly, arrange to give a copy to the TA for display in class, or let the TA know you intend use your own laptop to play it back through the projection system in the classroom (in which case it's still probably a good idea to have a portable copy in case of problems). Your presentation must be complete and in final form at least 30 min before your scheduled presentation time. No last-minute edits.

Here is the man page from Matlab for mpgwrite, if you wanted more details:

#### MPGWRITE

##### Purpose

Translate a Matlab movie into an MPEG file.

##### Synopsis

```
mpgwrite(movie, map, 'filename', options)
    Matrix movie;
    Matrix map;
    String filename;
    Vector options;
```

##### Arguments

movie                    a matrix containing a Matlab movie.



An integer between 1 and 31. Default is 8.

7. P-FRAME Q-SCALE:

An integer between 1 and 31. Default is 10.

8. B-FRAME Q-SCALE:

An integer between 1 and 31. Default is 25.

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