Reading and Writing Movies files in Matlab

Reading Movie Files in Matlab

- Matlab can read “avi”, “mpg”, and “wmv” movie files

```
VideoReader.getFileFormats()   % see full list
```

- To get information about the movie:

```
movieObj = VideoReader('xylophone.mpg'); % open file
get(movieObj)     % display all info
nFrames = movieObj.NumberOfFrames;
width = movieObj.Width;                % get image width
height = movieObj.Height;              % get image height
```

- To read images one at a time:

```
for i=1:nFrames
  img = read(movieObj,i);   % get one RGB image
  :
end
```

Example

```
clear all
close all

movieObj = VideoReader('oneCCC.wmv'); % open file
get(movieObj)     % display all information about movie

nFrames = movieObj.NumberOfFrames;

% Read every other frame from this movie.
for iFrame=1:2:nFrames
    I = read(movieObj,iFrame);   % get one RGB image
    fprintf('Frame %d\n', iFrame);

    imshow(I,[]);        % Display image

    % Pause a little so we can see the image.  If no argument is given, it
    % waits until a key is pressed.
    pause(0.1);
end
```

Reading (continued)

- Reading frames one at a time is slow ... an alternative is to read all of them at once (takes more memory)

```
images = read(movieObj);   % get all images
```

  - This creates a 4-dimensional array, of size (height, width, 3, nFrames)

```
I = images(:,:,:,i);  % get the ith image
```

- You can also read an interval (say from 100 to 200)

```
images = read(movieObj, [100 200]);
```

- Note on wmv files (see Matlab help page for more information)
  - Some formats (including wmv) store video at a variable frame rate
  - On these files, VideoReader cannot determine the number of frames until you read the last frame
  - It may return a warning that it can't determine the number of frames

Writing Movie Files in Matlab

- To create a movie (avi format)

```
vidObj = VideoWriter('mymovie.avi');  % create avi file
open(vidObj);
:
  % Add next frame to movie
  imshow(img);
  newFrameOut = getframe;
  writeVideo(vidObj,newFrameOut);
:
close(vidObj);   % all done, close file
```