Eye-gesture Recognition in Regards to Inattentiveness

* Goal:
  + Figure out when user is closing their eyes or gazing away and predicts if they are focused on the task at hand
  + Potentially automates a task if user is not attentive and simultaneously alerts user of attention deviation
  + Bringing a user’s attention to something when they need it or when it is critical for something to have user’s attention
* Other considerations:
  + Possible to integrate this with AR or VR, especially for cuing the user of certain events/actions/alerts
  + Contains the user modeling aspect
    - Monitors task progress and user attentiveness
    - Adapts to user interaction given a task by providing different levels of cues and autonomy for a task
    - Computer constantly adapts to user's attentiveness and adjusts its level of cues to gain back human attention
  + Contains the computer vision aspect
    - Recognizes patterns of the person's eyes/gaze
* Possible application:
  + Operating a vehicle
    - The program can analyze the effectiveness of user operation compared with the measured eye/gazing patterns
  + Watching a video to learn something but also needing to write something down on a piece of paper or needing to look at a different monitor for other information
    - Potentially, the program can alert the user of something important coming up in the video that they should pay attention to
  + Gauging attentiveness in a classroom or when studying
* Question to consider:
  + Does it matter what task it is? It might not. We might just care about identifying when someone is attentive or not (at least for right now)
    - Ie, when someone is speaking to you but you're not really paying attention
* Experiment:
  + Give a task to user via computer screen in a certain amount of time
  + Measure user's eye movements and patterns
  + Record and gauge effectiveness of task
* Maybe not even eye-tracking, but face direction tracking
* Model for attention
* Model for when you need to pay attention
* Criticality of tasks
* When to multitask and when to not