**Information Review**

Bradski, G. R., & Kaehler, A. (2008). Learning OpenCV. Sebastopol, CA: O’Reilly

This book is what I can use to learn the fundamentals of the OpenCV framework. As well as providing the code on how to do operations, it also goes behind the scenes by providing the theory behind the algorithms used in machine vision. Included in the book are some potential algorithms I could use such as Hough Transforms, Optical Flow and K-means.

Matthes, E. (2016a). Python crash course. San Francisco: No Starch Press.

As I already a basic knowledge python, I didn’t really need anything that in-depth but rather something to refer back to at times.

Anderson,Nathanael J.; Stoychev,Valio. (2016). Getting started with NativeScript

This book is what I will use to learn the framework NativeScript (which is a mobile app development framework). This framework will allow me to make the mobile app in JavaScript for both Android and iOS.

Chen-Wei Chou. (2009). Billiards wizard: A tutoring system for broadcasting nine-ball billiards videos

A paper that proposes a tutoring system for pool, the proposed system includes a ball-tracking system and they describe the algorithms they would use to track the balls. Some of the algorithms they mention include K-Means, Optical Flow and Flood Fill. The K-Means algorithm is a potential candidate to detect the balls in my system.

Shen, W., & Wu, L. (2010). A method of billiard objects detection based on snooker game video IEEE Publishing. doi:10.1109/ICFCC.2010.5497393

This paper describes another method of detecting and tracking balls. The described method is one of the more common methods I’ve come across and it involves converting the frame into HSV colour space, masking out the balls based on colour and then some morphological operations to smooth all the detect balls

Gupta, V. (2017). Color spaces in OpenCV. Retrieved from <https://www.learnopencv.com/color-spaces-in-opencv-cpp-python/>

This web articles describes the different aspects of each colour space available in OpenCV and how each colour space works in different lighting conditions.

V. A. OLIVEIRA, A. CONCI Computation Institute – Universidade Federal Fluminense – UFF – Niteri, Brazil. {victor\_oliveira, & aconci}@ic.uff.br Skin detection using HSV color space

This article describes using the HSV colour space to detect skin and although my system doesn’t include skin it is useful to know that HSV can be accurate in non-consistent lighting conditions.

Rosebrock, A. (2015). Ball tracking with OpenCV. Retrieved from <https://www.pyimagesearch.com/2015/09/14/ball-tracking-with-opencv/>

This web article take you through a practical method of how to track balls based on colour and from the way it was made, it seems it would be easy to scale it up to include multiple balls simultaneously

Gaurav,Kumar; Ghanekar,Umesh. (2018). Image steganography based on Canny edge detection, dilation operator and hybrid coding

This journal talks about canny edge and how it can be used to detect objects. This is another algorithm that I could use to detect balls.

Kong,H.; Akakin,H.C.; Sarma,S.E.. (2013). A generalized laplacian of gaussian filter for blob detection and its applications

As there is a potential for balls to be travelling at high speed, the results balls may end up being a blob like shape. This paper describes how you would go about detecting blobs