Key References:

Exploring the Technology that Drives "The Human Race", 2017. Presentation. USA: Epic Games. [online]
Available from https://www.youtube.com/watch?v=A0BfZoFZyBs
[Accessed 1 April 2017]

> General source of information about the process of virtual production and the technology
> behind the The Human Race project. This included the motion capture, real-time rendering
> and compositing, hardware and visual effects used for the short movie.

Renaud-Houde, E., 2017, Developer at The Mill, Website: http://num3ric.com

> Eric is the creative developer for the Human Race project at The Mill, New York. He was
> able to point me in the right direction in terms of what libraries / software were used for the
> tracking and AR for the project, and also give a better understanding of the various
> technologies used in making the film, such as the custom UE4 plugins used for video
> transmission. We communicated via Google Hangouts over a period of almost 2 months.

Seymour, M., 2017. *The Mill's incredible Blackbird at GDC : The future of virtual production*. FX Guide.
Available from: https://www.fxguide.com/featured/the-mills-incredible-blackbird-at-gdc-the-future-of-virtual-production/
[Accessed 5 April 2017].

> An in-depth look at the technologies that drove the project

The Human Race, 2017. Short movie. Directed by Rama Allen and Westley Sarokin. USA: The Mill. [online]
Available from http://www.themill.com/portfolio/3516/the-human-race-
[Accessed 30 March 2017]

> This is the short movie that is the main inspiration for the research topic. It premiered at the
> Game Developers Conference 2017 (Shown in slide 2 of the presentation).

References:

Atomic Fiction, 2016. *"Deadpool" Visual Effects Breakdown*. Vimeo, Atomic Fiction.
Available from: https://vimeo.com/159011768
[Accessed 17 May 2017].

> Slide 3 slideshow image

April Robotics Library, 2017. *April Tags*. April Robotics Laboratory.
Available from: https://april.eecs.umich.edu
[Accessed 18 May 2017].

> Slide 7 image and fiducial tracking library used for implementation.

Autoblog, 2016. *The Mill Blackbird Shapeshifting Car | Translogic 208*. Youtube, Autoblog.
Available from: https://www.youtube.com/watch?v=mhcWjq7JSjo
[Accessed 18 May 2017].

> Slide 10, Interview with Alistair Thomson and Pete King from The Mill, about the
> Blackbird automotive motion capture rig. I obtained information about the use of the
> LiDAR system on the rig from this interview.

Chaleat, C., 2016. *Virtual Production: Real Time, Right Now [The Graphic Masters Series]*. HP.
Available from: https://h30657.www3.hp.com/t5/BusinessNow-en/Virtual-Production-Real-Time-Right-Now-The-Graphic-Masters-Series/ba-p/5693
[Accessed 18 May 2017].

> Slide 4 slideshow image

Chasing Perfection, 2013. Commercial. Directed by Brian L. Tan "BLT". USA: Chase Car Inc.

> Slide 10 image

Choudhary, S., Bundle Adjustment : A Tutorial. Georgia Tech College of Computing:
Available from: http://www.cc.gatech.edu/~choudhar/presentations/BA_Tutorial.pptx
[Accessed 14 May 2017].

> Tutorial on the process of bundle adjustment – a process to accurately reconstruct 3D
> structures and extract their pose and calibration

Debevec, P., 2002. Image-Based Lighting. 26-27.
Available from: http://ict.usc.edu/pubs/Image-Based%20Lighting.pdf
[Accessed 22 May 2017].

> Slide 13, Tutorial on how Image Based Lighting can illuminate virtual objects using
> measurements of the host environment's real-world light.

Epic Games, 2017. *Unreal Engine*. Epic Games.
Available from: https://www.unrealengine.com/en-US/blog
[Accessed 18 May 2017].

     Slide 7 image

Fernando, R., *Percentage-Closer Soft Shadows*. NVidia.
Available from: http://developer.download.nvidia.com/shaderlibrary/docs/shadow_PCSS.pdf
[Accessed 20 May 2017].

     Slide 14, information on Percentage Closer Soft Shadows, a method to produce realistic
     soft shadows for objects.

IGN Staff, 2013. *Cameron's Avatar Becomes a Science Exhibit*. Imagine Games Network.
Available from: http://me.ign.com/en/movies/63687/news/camerons-avatar-becomes-a-science-exhibit
[Accessed 18 May 2017].

     Slide 4 slideshow image

Joseph, I., 2011. *Avatar iTunes Extras special edition lets you dissect key scenes*. The Verge.
Available from: https://www.theverge.com/2011/12/17/2641576/avatar-itunes-extras-special-edition-disect-key-scenes
[Accessed 18 May 2017].

     Slide 4 slideshow image

Knight, J., 2010. Interview: Avatar mocap producer James Knight. *CG Channel*, 1 November 2010,
Available from: http://www.cgchannel.com/2012/01/interview-avatar-mocap-producer-james-knight/
[Accessed 15 May 2017].

     Information about virtual cameras and motion capture

MPC, Tim Wilson, *Making Maleficent Fly*. www.creativecow.net, Pixmondo.
Available from: https://library.creativecow.net/wilson_tim/Maleficent_VFX_Carey-Villegas/1
[Accessed 17 May 2017].

     Slide 3 slideshow image

Oblique FX, 2016. *ARRIVAL - VFX Breakdown By OBLIQUE FX*. Youtube, Movie FX.
Available from: https://www.youtube.com/watch?v=HVAC0dj8f1U
[Accessed 17 May 2017].

     Slide 3 slideshow image

Olson, E., 2013. *AprilTags C++ Library*.
Available from: http://people.csail.mit.edu/kaess/apriltags/
[Accessed 13 April 2017].

AprilTags visual fiducial system - Implementation tutorial

OpenCV, 2017.
Available from: http://opencv.org
[Accessed 18 May 2017].

Slide 7 image and main computer vision library used for implementation.

Pixmondo, 2015. *Game of Thrones Season 4 Making Of*. Youtube, Pixmondo.
Available from: https://www.youtube.com/watch?v=ssJwFjyS7q8
[Accessed 17 May 2017].

Slide 3 slideshow image

Staff, 2012. *Autodesk Teams with Lightstorm Entertainment and Weta Digital To Drive Virtual Production*. BTL News.
Available from: http://www.btlnews.com/crafts/post-production/autodesk-teams-with-lightstorm-entertainment-and-weta-digital-to-drive-virtual-production/
[Accessed 18 May 2017].

Slide 4 slideshow image and information about the virtual production methods used for the movie Avatar.

Statt, N., 2017. *This motion capture system for cars lets a vehicle morph in real time*. The Verge.
Available from: https://www.theverge.com/2017/3/1/14778662/epic-games-chevrolet-the-mill-cyclops-car-motion-capture
[Accessed 6 April 2017].

Slide 10 image and information about 'Cyclops', the visual tracking system from The Mill.

The Mill, 2015. *Case Study: Mill Stitch*. The Mill.
Available from: http://www.themill.com/millchannel/552/mill-stitch
[Accessed 12 April 2017].

Slide 10, information about the 'mill-stitch' 360° video stitching solution from The Mill

Triggs, B., McLauchlan, P. F., Hartley, R. I., Fitzgibbon, A. W., 1999. *Bundle Adjustment — A Modern Synthesis*. Survey. Johns Hopkins Whiting School of Engineering.

Slide 9, paper on the process of bundle adjustment – a process to accurately reconstruct 3D structures and extract their pose and calibration.

University of Southern California, 2017. *High-Resolution Light Probe*. USC Institute for Creative Technologies, University of Southern California.
Available from: http://gl.ict.usc.edu/Data/HighResProbes/
[Accessed 22 April 2017].

> Slide 13, information about the lat-long panoramic image format and HDRI.

Variety Artisans, 2016. *'The Martian' Visual Effects - Variety Artisans*. Youtube,
Available from: https://www.youtube.com/watch?v=FI0YfcUdNBw
[Accessed 17 May 2017].

> Slide 3 slideshow image

Wang, J., Olson, E., 2016. AprilTag 2: Efficient and robust fiducial detection. *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2016. 1-3.

> Slide 8, paper on the Apriltags Visual Fiducial System and its implementation details.