K19: How to undertake real-world 3D digital capture and process 3D data

Overview of Knowledge Gained

My understanding of real-world 3D digital capture and data processing developed during Year 5 and Year 6 of my degree, particularly through exposure to tools like Spline and Skybox, and by exploring immersive environments in modules such as IMM200. While my experience is still developing in this area, I have gained insight into how 3D assets can be captured, refined, and used in creative projects, especially for prototyping, immersive storytelling, and web integration.

Understanding 3D Digital Capture and Data Processing

3D Digital Capture

I was introduced to 3D digital capture methods such as photogrammetry and depth scanning. While I did not use specialist hardware like LIDAR or structured light scanners directly, I explored image-based techniques and 360° photography, particularly within tools like Skybox. This gave me a conceptual understanding of how multiple images from different angles can be compiled to form a 3D model or immersive environment.

Processing 3D Data

Using tools like **Spline**, I learned how to import, edit, and animate 3D assets in browser-based environments. I experimented with lighting, texture, scale, and user interaction, which deepened my understanding of how 3D data is processed and prepared for real-time use on websites or AR platforms. While not high-end modelling, this experience allowed me to process and optimise 3D visuals in a practical, accessible way.

Challenges and How I Overcame Them

The biggest challenge was the technical nature of 3D workflows and managing file sizes, compatibility, and rendering performance. At first, I struggled to understand how 3D data is structured, and which formats were suitable for web-based platforms. I overcame this by watching tutorials, attending workshops, and trialling small projects using simplified 3D tools like Spline. This hands-on exploration helped build my confidence and technical literacy.

Application in Practice

I applied my understanding of 3D capture and processing in immersive design coursework by integrating 360° content and basic 3D objects into concept prototypes. These were used to simulate spatial navigation or product interaction, giving users a more immersive experience. I also used browser-based platforms to create interactive 3D scenes that could be shared via a link, a useful tool for both client presentations and digital storytelling.

In future projects, I plan to continue developing these skills with more advanced 3D capture techniques, particularly in applications related to learning and development, where visualisation can support engagement and understanding.

Evidence by Academic Year

Year	Focus Areas	Tools Explored	Key Projects
Year 5	Introduction to 3D tools and environments	Spline, Skybox	IMM200 – Immersive Media
Year 6	Exploring 360° content and 3D prototyping	Synthesia (for 3D avatar output), 360° imagery	CRP300 – Critical Research Project