Throughout the project, many challenges were faced. The project investigated a novel integration of HE and unsupervised machine learning for image segmentation – neither of which are covered by Tripos content. Consequently, the most critical challenge was the need for research to cultivate background knowledge. However, there was little overlap between these topics found in published work, so significant time had to be invested in deriving potential solutions to encountered problems. Specifically concerning HE, lack of documentation regarding scheme applications warranted many hours of literature reviews and deciphering research papers.

Furthermore, computations using machine learning and HE took a long time to execute – particularly when networking was involved. Consequently, debugging and evolving algorithms was a time-consuming process. This made time management even more critical to allow enough time to complete a thorough investigation. However, these challenges did make the project a productive learning experience that will be helpful when exploring other areas of computer science in future or when working on any large projects generally.