

**Thesis Portfolio**

**Augmented Reality: Re-shaping the Business of the Future one 3-D Model at a Time**

(Technical Report)

**Ethical Implications of Video Conferencing and Communication Software on Mental  
Health**

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science  
University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree  
Bachelor of Science, School of Engineering

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Spring, 2022

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## **Sociotechnical Synthesis**

The technical report within this portfolio consists of a detailed description of my short- and long-term recommendations to a small company based out of NYC, in support of looking for vendors to create 3D models for small and large projects. The project began during my 2021 summer internship with Movable Ink. We were a group of two, the Head of Immersive Technology and I, but I had help and support from everyone in the company - from my manager to the software developers. We had begun doing research in the search for these kinds of vendors that could provide a Content Management System and had the ability to create 3D models of their own at every level of complexity, from a keyboard or purse to full fledged car models. Following the research, I had a few checkpoints I had to run through, which included: verifying the companies that I believed had potential and setting up an initial meeting to talk logistics and where they stood in the 3D model sector, compare each company that got an interview, grab a number of companies that we believed would be able to handle the scope of the project that we were suggesting, and finally talk contracts with our legal teams. Through each phase I met with my team and manager to make sure companies were being vetted and I was creating and staying on course with the plan I had created for myself with the project manager. Through some adversity and many meetings later I was able to deliver a short- and long-term plan to the company on how they could move forward in the 3D modeling business and help in paving the augmented reality roadmap for the company.

The STS research paper within this portfolio consists of an ethical analysis in regards to the prolonged usage of video conferencing and communication platforms and its correlation to lack of physical activity resulting in worse mental health in individuals, through the Science, Technology and Society framework, Social Construction of Technology (SCOT). Throughout the paper individuals will have a better understanding of how technology not only affects society, but it is also shaped by society. It enunciates the importance of recognizing the effect of and perspectives of different social groups and how that social aspect shapes the way in which businesses see technology.

The analysis of prolonged usage of video conferencing and communication platforms and its correlation to lack of physical activity resulting in worse mental health in individuals under the Science, Technology and Society framework of SCOT and the paving of an augmented reality roadmap go hand in hand. We are moving towards a world where humans will rely very heavily on technology. So we also have to advance our understanding of not just the technology, but also in how social groups shape technology and their intent behind the technology. Having this understanding clear, will help in creating the best technology not just for the advancement of the world, but also the safety of the consumer always in mind. There are social implications to everything we do and create and finding the balance between both is where we need to be better