### **1 Abstract**

Object detection and image analytics are at the forefront of computer vision and cutting-edge technology, achieving ever-growing importance in adopting safety measures, automizing tasks, and catering to consumer needs throughout society. Utilizing the popular, 30-season show The Simpsons, this project first leverages a convolutional neural network (CNN), a faster region-based convolutional neural network (R-CNN), a you only look once algorithm (YOLO), and a single shot multi-box detection algorithm (SSD) to develop models that can consistently detect and identify the most prevalent Simpsons characters. The project has secondarily focused on applying the image detection models to videos and images containing multiple Simpsons characters. The same methods that are applied to detect and identify Simpsons characters are at the forefront of advancements in surveillance in the security industry, pedestrian detection in the automotive industry, and attention-focus measures throughout society as a whole. As a means of ensuring that our findings can be thoroughly understood and thoughtfully applied to non-Simpson datasets, the project lastly involves visualizations, a user interface (UI), and cloud computing through AWS SageMaker.