George Mason University

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**Image Detection of Simpson’s characters**

**Abstract**

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### **Abstract**

Object detection and image classification are at the forefront of computer vision technologies found throughout society today. Recent advancements in facial-detection-based surveillance in the security industry, pedestrian and sign detection in self-driving cars, and automated valuation of properties are all applications of this cutting-edge technology.

Utilizing the popular 30-season show The Simpsons, this project implements object detection and image classification for primary characters from the Simpsons series. Various deep learning architectures, like Convolutional Neural Network (CNN), Faster Region-based Convolutional Neural Network (R-CNN), You Only Look Once (YOLO), and Single Shot Multi-box Detection (SSD) have been explored. As a secondary focus, this project implements YOLO to videos and explores the use of cloud computing to train and execute models. Visualizations and a User Interface (UI) that enable a real-time data feed to model execution are also implemented to encourage further use of our findings.