1154-68-2599   **Parmida Davarmanesh***, 2009 Huron Pkwy, apt 8, Ann Arbor, MI 48104, and **Kuanhao Jiang**, **Tingting Ou**, **Artem Vysogorets**, **Shantanu Joshi** and **Nicholas Malaya**.
Automating Artifact Detection in Video Games. Preliminary report.

The video game industry is the most influential form of entertainment in America and the world. Despite optimized and specialized gaming hardware and software, gameplay can be impaired with graphics errors, screen artifacts, and other forms of corruption which are labor intensive to detect. This research has explored methods to automate anomaly detection and classification. This was accomplished by machine learning models to classify each frame of a video game as glitched or normal. The primary challenge is the lack of labeled and catalogued gaming data. To circumvent this bottleneck, a database was generated by extracting images from gameplay videos and adding artifacts modeled after observed corruption to the images. This work also explored several ways to extract features from the images, such as Fourier spectra, the histogram of gradients, and graph Laplacians. Using the extracted features, multiple classifiers were built to detect different types of glitches. Finally, an ensemble model was constructed by combining the individual classifiers using logistic regression. The results were able to accurately predict real corrupted images with a high degree of accuracy, indicating this approach may be applicable to a wide range of corruption in visual image processing. (Received September 17, 2019)

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