Recovering History: A Multifaceted System to Enhance, Classify and Reconstruct Broken Parts of Artifacts by Using a Custom Machine Learning Ensemble

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A look into the past: More than often, artifacts recovered in archaeological excavations are damaged or broken.This might be due to continued exposure to harsh and unforgiving environments, another possible reason is the mishandling and tampering of these artifacts by people.In such processes valuable data about an artifact is lost forever. Currently, there is a serious lack of software that focuses on archaeological image enhancing and reconstruction.To address this, I come up with a multifaceted system using a customised machine learning ensemble to efficiently enhance, classify and reconstruct 2-D artifact images to give suitable predictions about how the artifact had looked like in the past.First, the images are enhanced by several techniques like lighting and contrast adjustment.Next, the images entered into the system are classified to assign the relevant dataset , these datasets include images of busts and sculptures among others .Lastly the custom generative adversarial network that focuses on area specific reconstruction is applied.This platform actually makes suitable predictions to what a broken part of an image might've looked like and outperforms conventional GAN based systems.In doing so, it proves to be an efficient tool for archaeologists on field studies and helps archaeologists to better examine and streamline their findings and make more accurate predictions about our past.

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