Is a Picture Worth a Thousand Words: Visual Emotional Analysis using Transfer Learning and CNNs
Noah Jacobson, Katherine Kowalski, Hasna Rtabi
noahj08@stanford.edu, kasia4@stanford.edu, hasna@stanford.edu

Motivation

- Historically, computers have faced difficulties in assessing human emotions, and efforts were thought to be outside the capabilities of a machine.
- Modern approaches in deep learning, however, show that this might not be the case.
- Emotional descriptors that label the emotions present in a piece of visual art can provide a more nuanced understanding of human affect.

Background

- There is a growing interest in the use of images to elicit emotions in users. However, the results are not always as expected. The models used are trained on a large dataset of images, but they don't always perform well when the emotions are not as expected.
- This paper explores the use of transfer learning and CNNs to improve the accuracy of emotional analysis.

Data and Features

- Features extracted from the images include:
  - Color features
  - Texture features
  - Edge features
- These features are then used to train the CNNs.

Methods

- The methods used include:
  - Residual neural networks
  - Transfer learning
  - Feature embedding and multi-class classification

Results

- The results show that:
  - Residual neural networks perform better than transfer learning.
  - Feature embedding and multi-class classification improve the accuracy.

Discussion

- The paper concludes that:
  - Residual neural networks can be used to improve the accuracy of emotional analysis.
  - Future work could include:
    - Improving the accuracy of emotional analysis
    - Exploring the use of other features

Future Work

- The future work includes:
  - Improving the accuracy of emotional analysis
  - Exploring the use of other features

References


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