

# Cinematic Colors and Colorization

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12/04

Color is a cinematic characteristic.

Cinematic colors are highly correlated with genres.

War

Romance

Horror



War

Romance

Horror



War

Romance

Horror



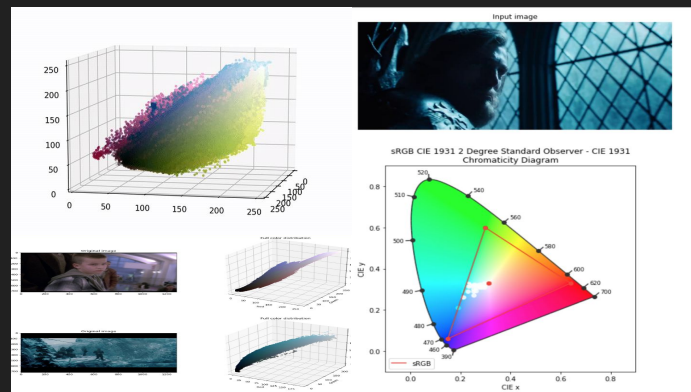
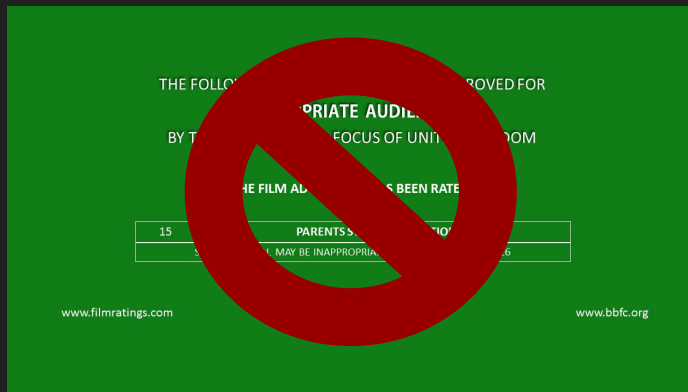
???



# The trailer dataset

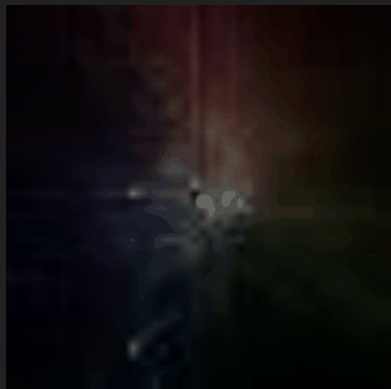
- Collected all trailers from ~1000 top rated movie trailers (from TMDb)
  - 1800 trailers
  - Highest Available Quality
- Metadata (from TMDb):
  - Genre
  - Director
- Our analyses are only performed on live-action films

# Pre-processing the frames

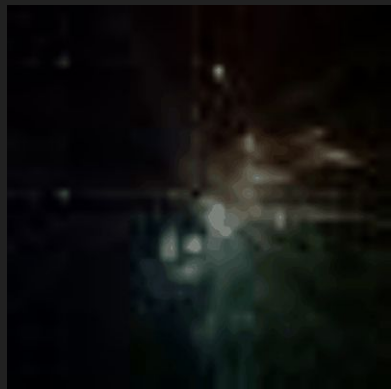




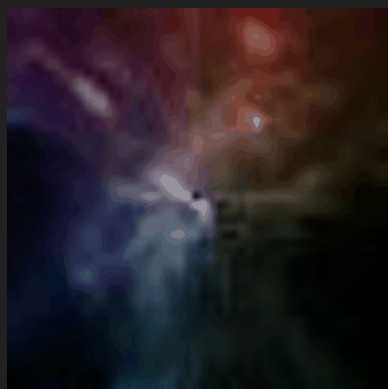
Chroma histograms suggest different genres → different colors



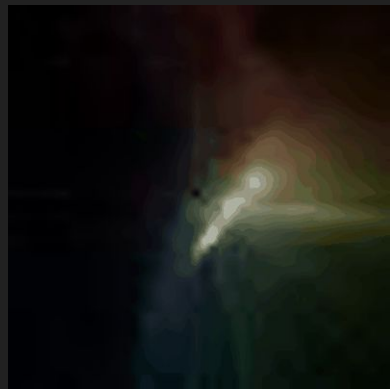
Romance



Thriller



Fantasy

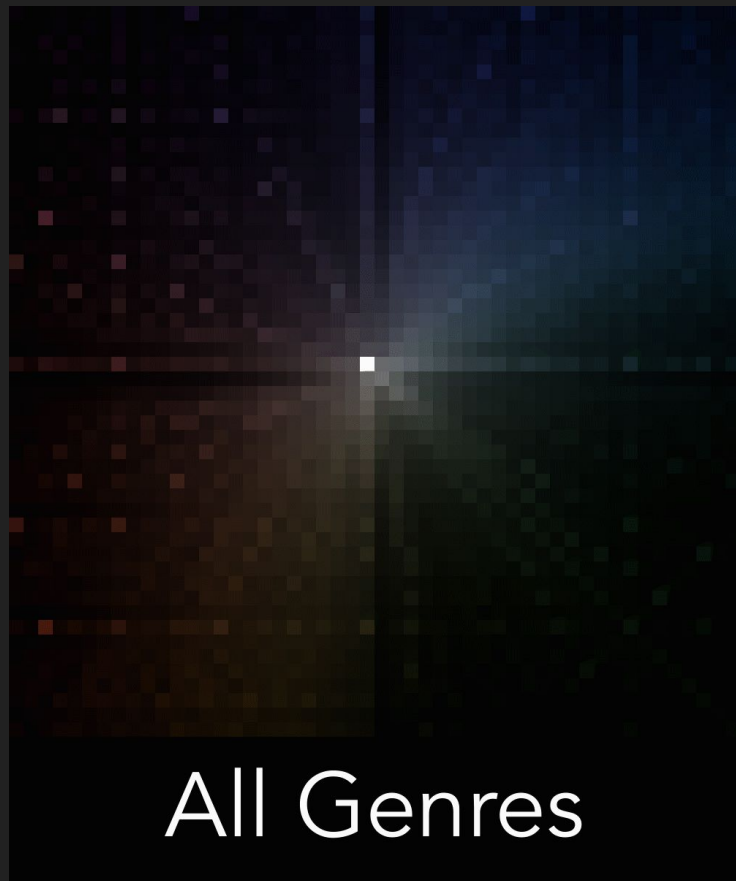


Horror

"Convolutional Color Constancy", Barron 2015

# Temporal Color Variation

- We can see which colors vary most between shots.
  - War, Western
- Local Temporal Consistency
  - Median 60% Correlation in successive shots
  - Median 99% Correlation in successive frames
- Variation in Casual v. Cinematic



# Color Transfer

Global methods yield undesirable results.

Target Colors



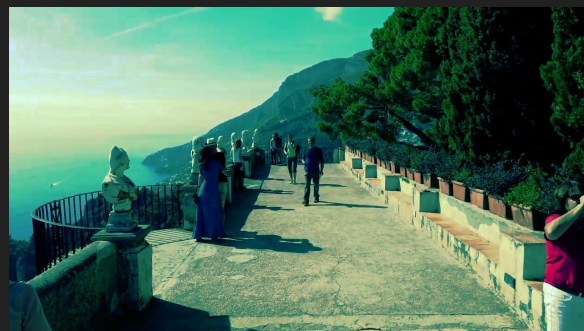
Source Image



Global Affine Color Transform



Histogram Matching



# Color Transfer by Segmentation

We originally planned to use a pre-trained segmentation network, but decided to use color names instead.

Target Colors



Source Image



Color Transfer by Color



"Color Naming Models", Heer and Stone 2012

# Color Transfer by Color

Target Colors



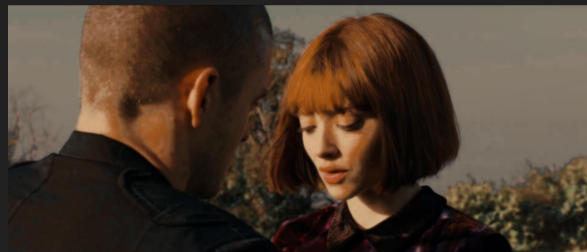
Source Image



Histogram Matching



Color Transfer by Color

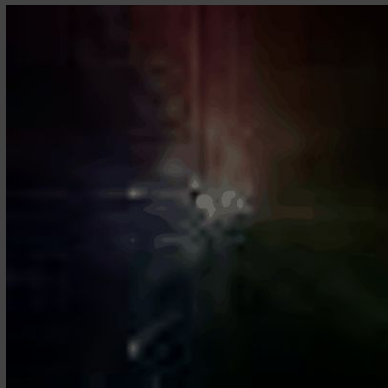


From perceptual analysis to data-driven learning

# How much does color tell about a genre?

## Model 1

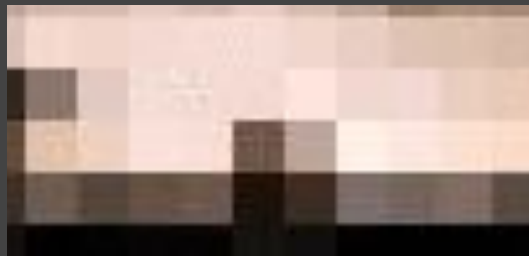
Input: Histogram



Architecture: MLP

## Model 2

Input: Blocky color frames



Architecture: CNN (Unet)

## Model 3

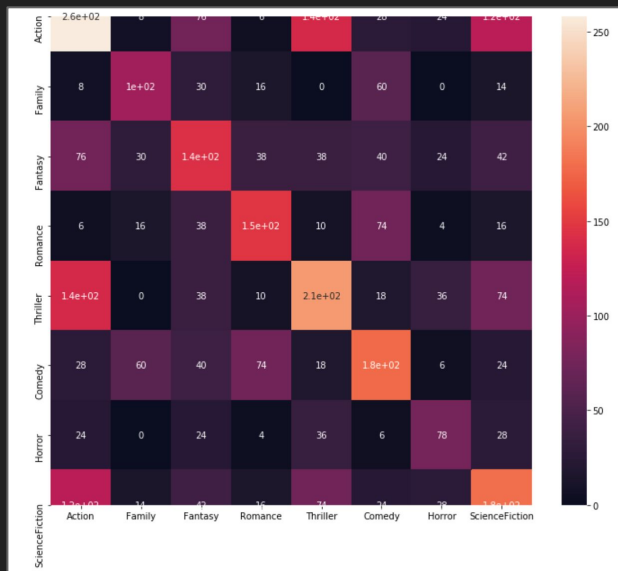
Input: Gray-scale frames



Architecture: CNN (Unet)

# Genre Classification

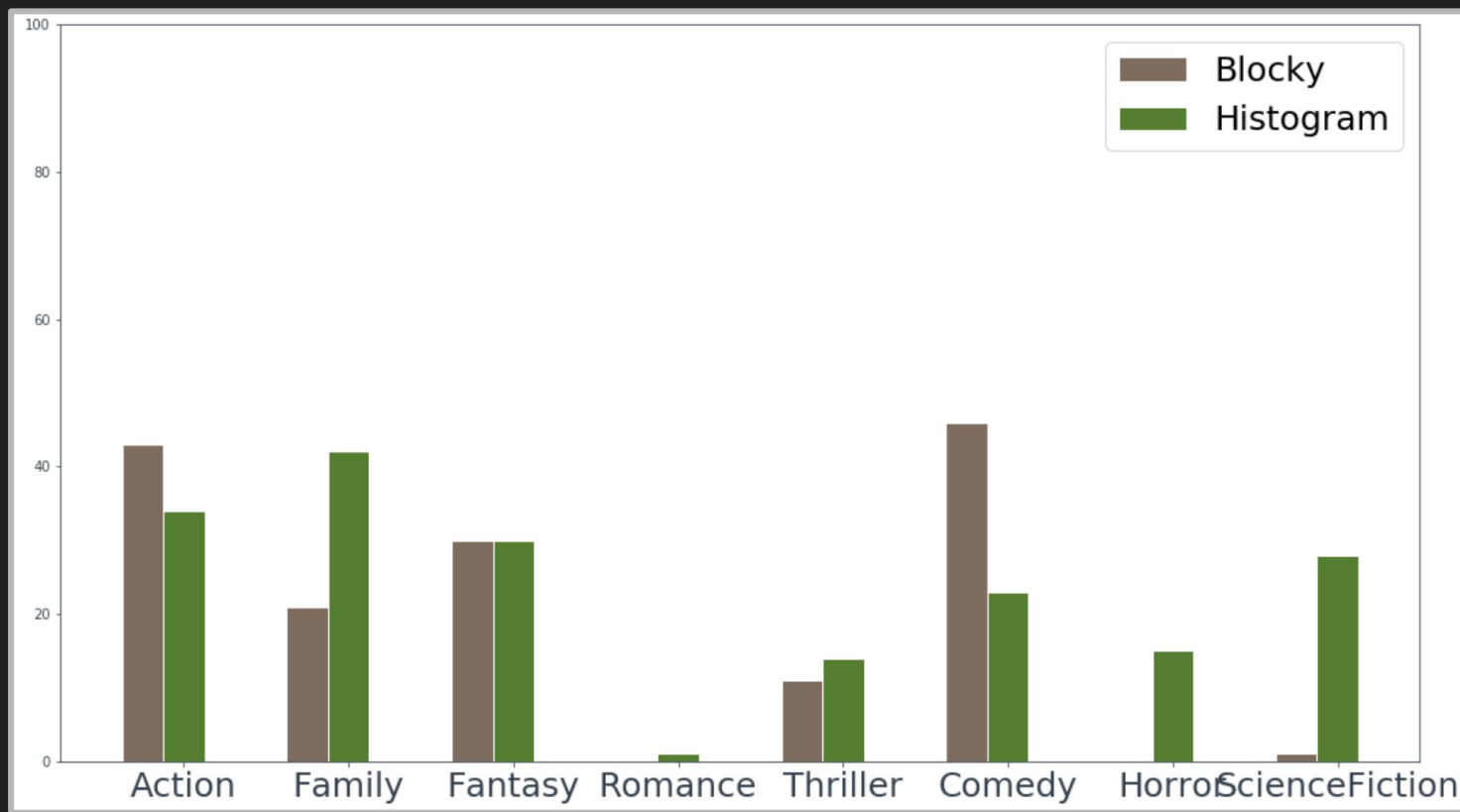
- 8-class genre classification task
- 100 video trailers per genre (chance: 12.5%)
- 20 frames from a trailer per instance



|          |         |        |        |
|----------|---------|--------|--------|
| Thriller | Romance | Sci-Fi | Comedy |
| Action   | Fantasy | Horror | Family |

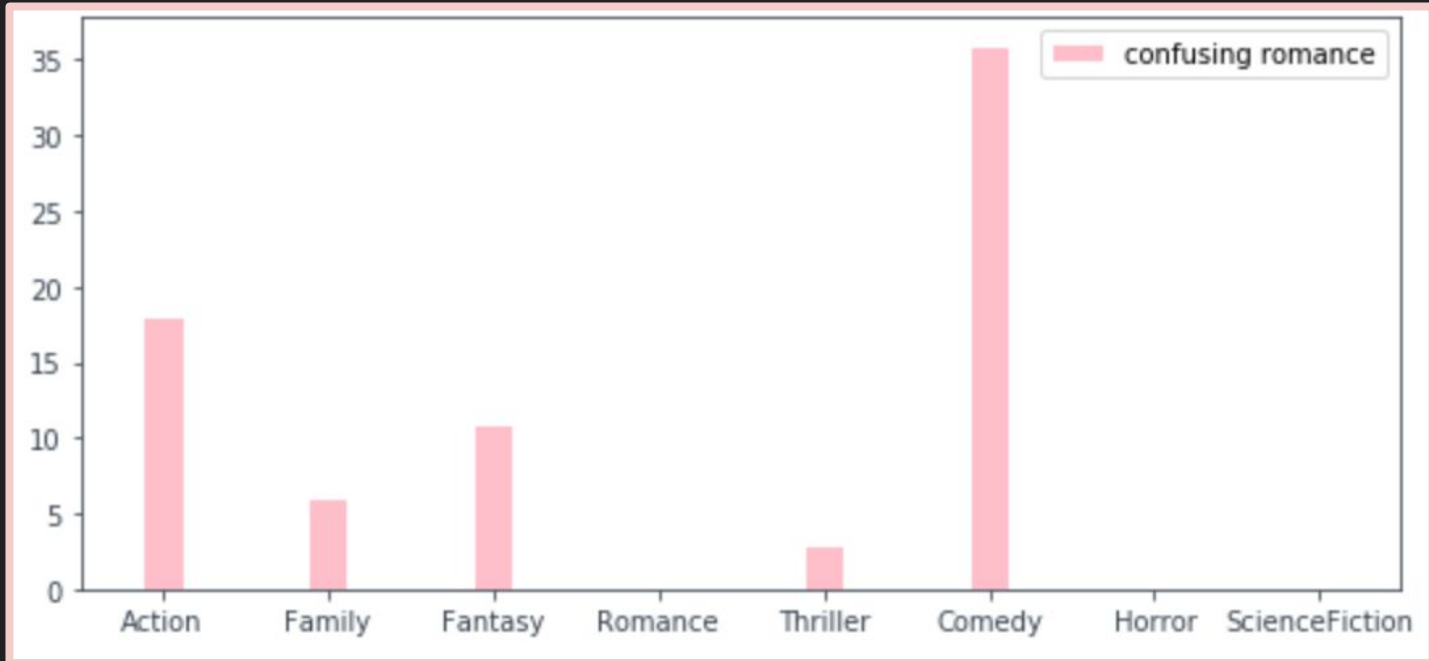


# Histogram & Blocky Color -- Classification



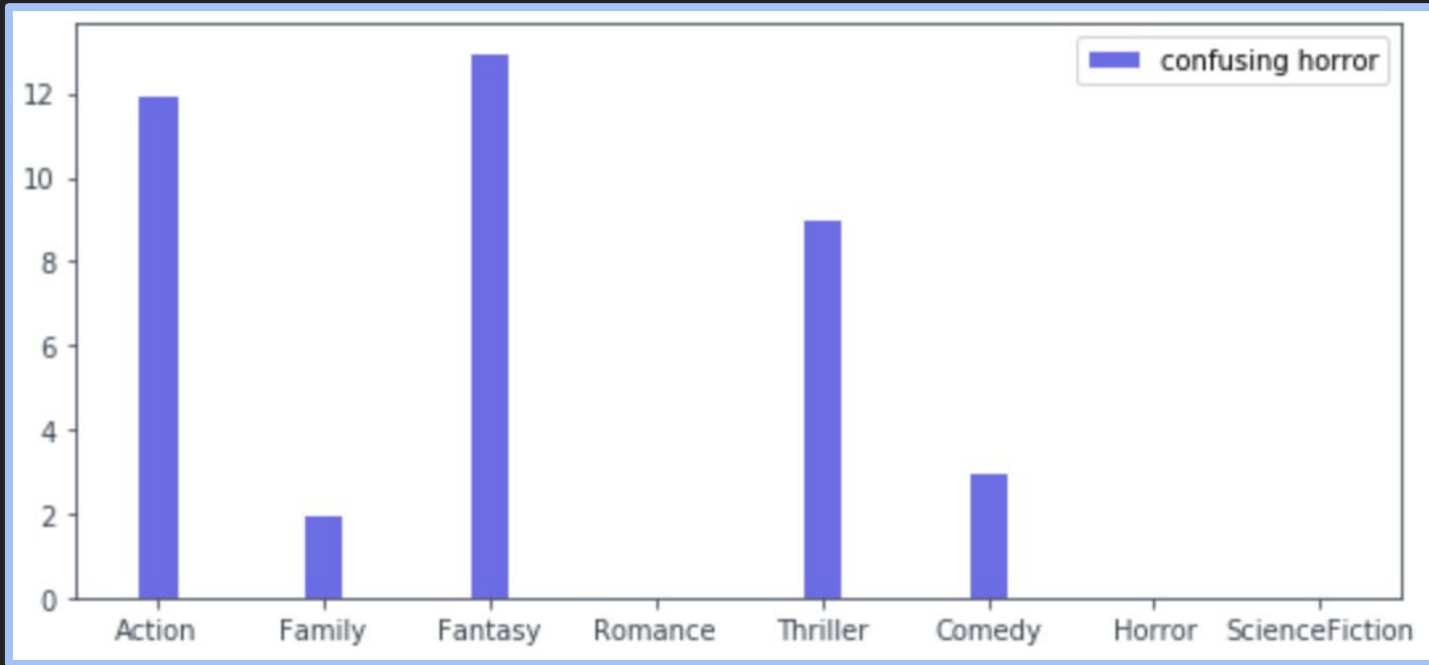
# What are confusing genres?

Confusing Romance:



# What are confusing genres?

Confusing Horror:



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