RAW Image Transform Approximation Pipeline

By Ryan Emanuel

- Many cinema camera manufacturers cannot record RAW formats in camera
- RAW recording usually requires external recorders
- These recorders are expensive and heavy

RAW formats allow for the same in camera color controls in post production after recording



Can we create a post production plugin to mimic this control in industry leading post production software?





White Balance Pipeline Design

Data Generation

Nuke for RAW->EXR Nuke for WB permutation Sklearn for interpolation Numpy for sampling Numpy for IO permutation OpenEXR for EXR->numpy

Data Storage

SQL

Data Processing

Tensorflow ANN
Pandas for data import
Sklearn for model preparation

Testing

Unit testing for Data Generation functions (sampling, and permutation)

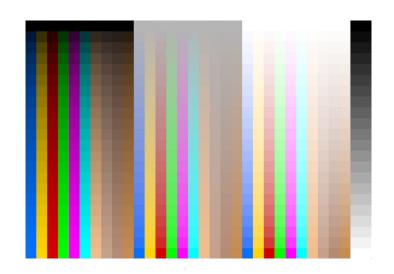
Deployment

Flask for Web App deployment (local)

Colour for 3DLUT integration

Data Engineering

18 IMAGES * 704 SWATCHES * 9 WB INPUTS * 9 WB OUTPUTS = 1M SAMPLES



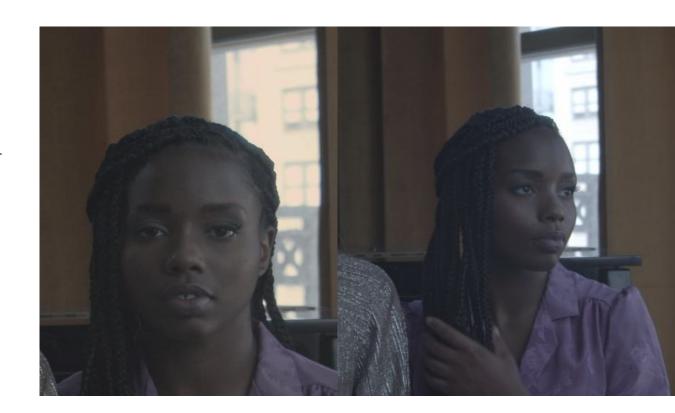


Web Application



Insights

- More training is needed for non-linearities in the highlights
- Midtones and darks have good performance



Future Work

- Add more features like tint, ISO and spectral illuminant
- Integration with C translation for post production software
- Build the company FilmSTAT!