

PostScriptML

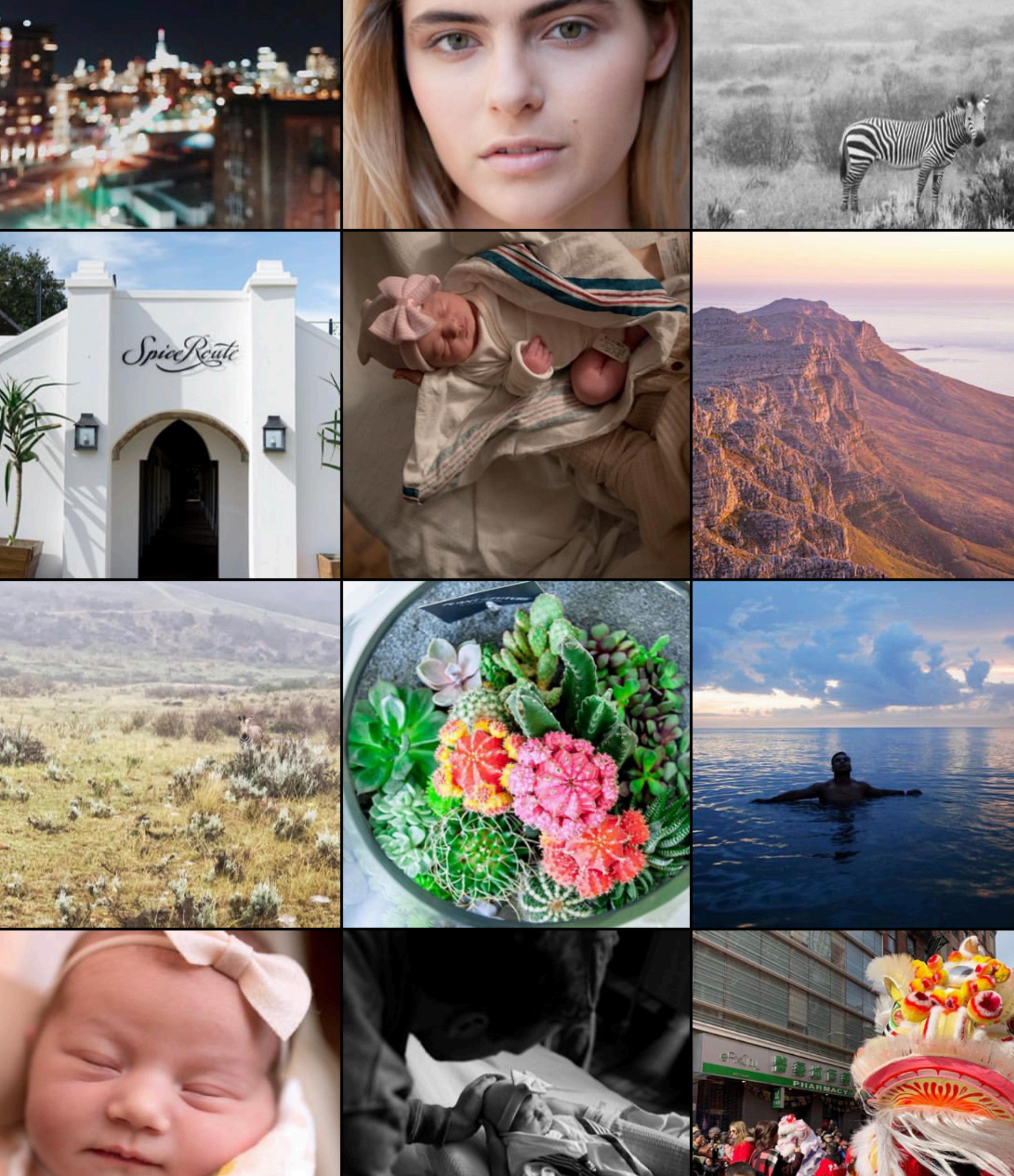
Using CNNs for image classification
in the post processing of photographs

Dolci Key Sanders September 2020

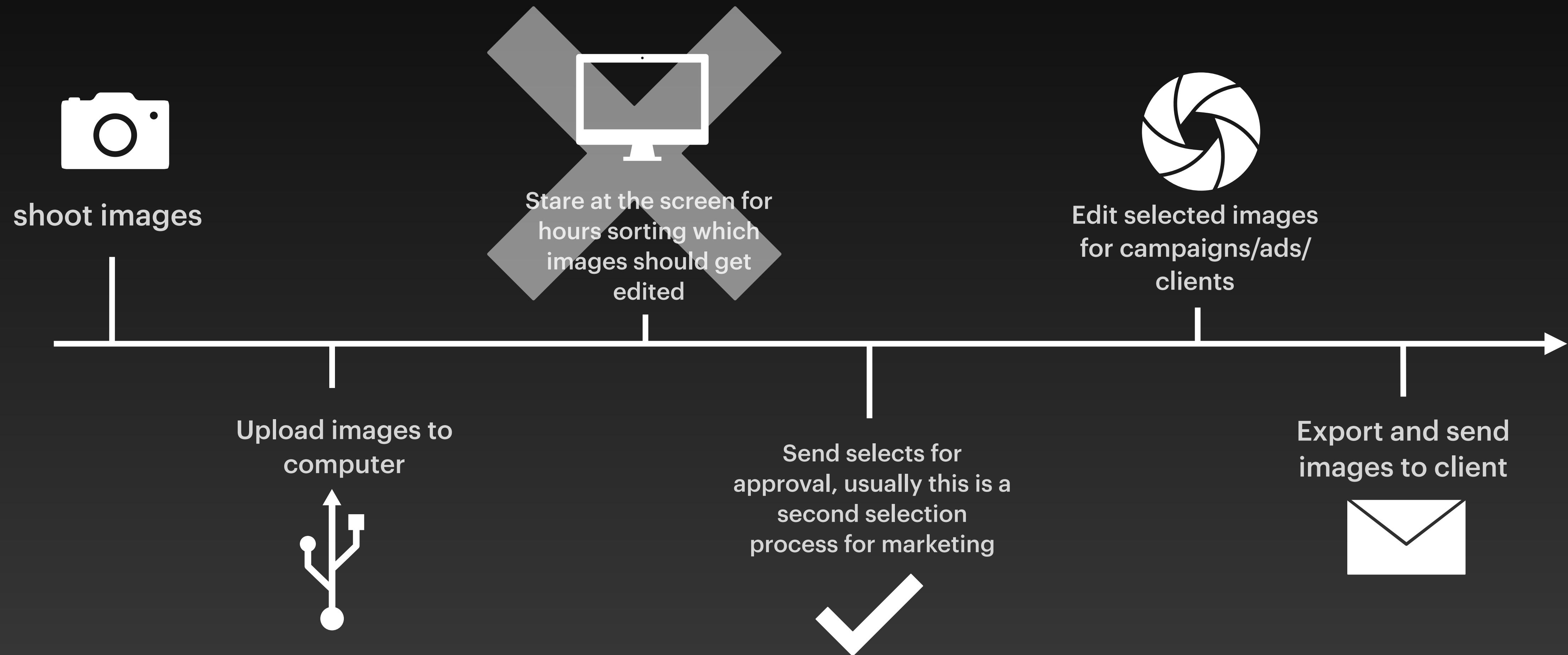
Content is today's marketing currency.

Photography

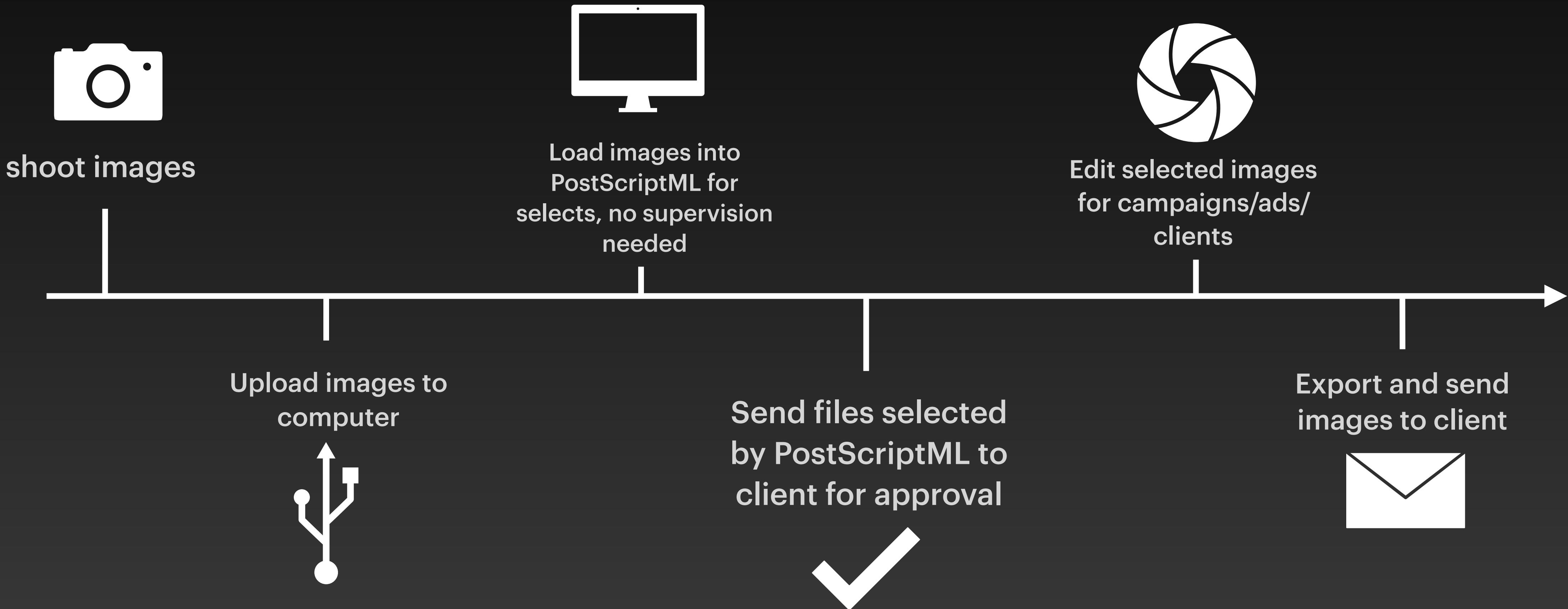
- Today's marketing relies heavily on images
- Once images are taken, they are sorted into selection folders before they are edited. This is how photographers know what to edit and what to reject/throw away.
- Sorting through 1000 photos for the best images can hours.



Photographers' Work Flow



With PostScriptML



Sorting through Unedited Images

images by @dolcikeyphotography



Reject

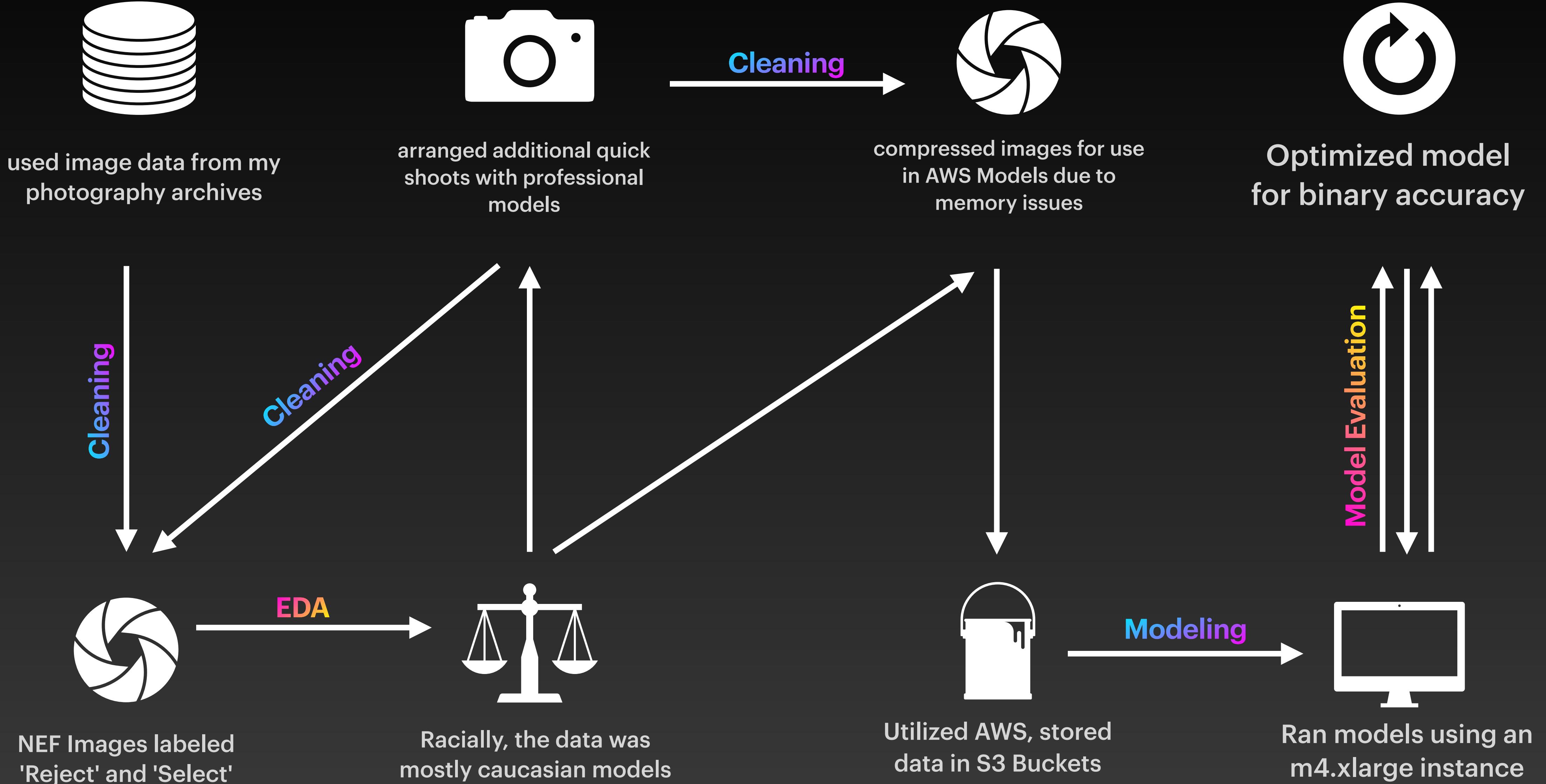


Select



Reject

CRISP-DM Data Journey



The Data

186.64

GB of .NEF (RAW) Photographs

3282

total images

Data Considerations

- Dealing with Class Imbalance
- Minimizing Racial Bias
- Image Size RAW/Compression
- Acknowledging Selection Bias

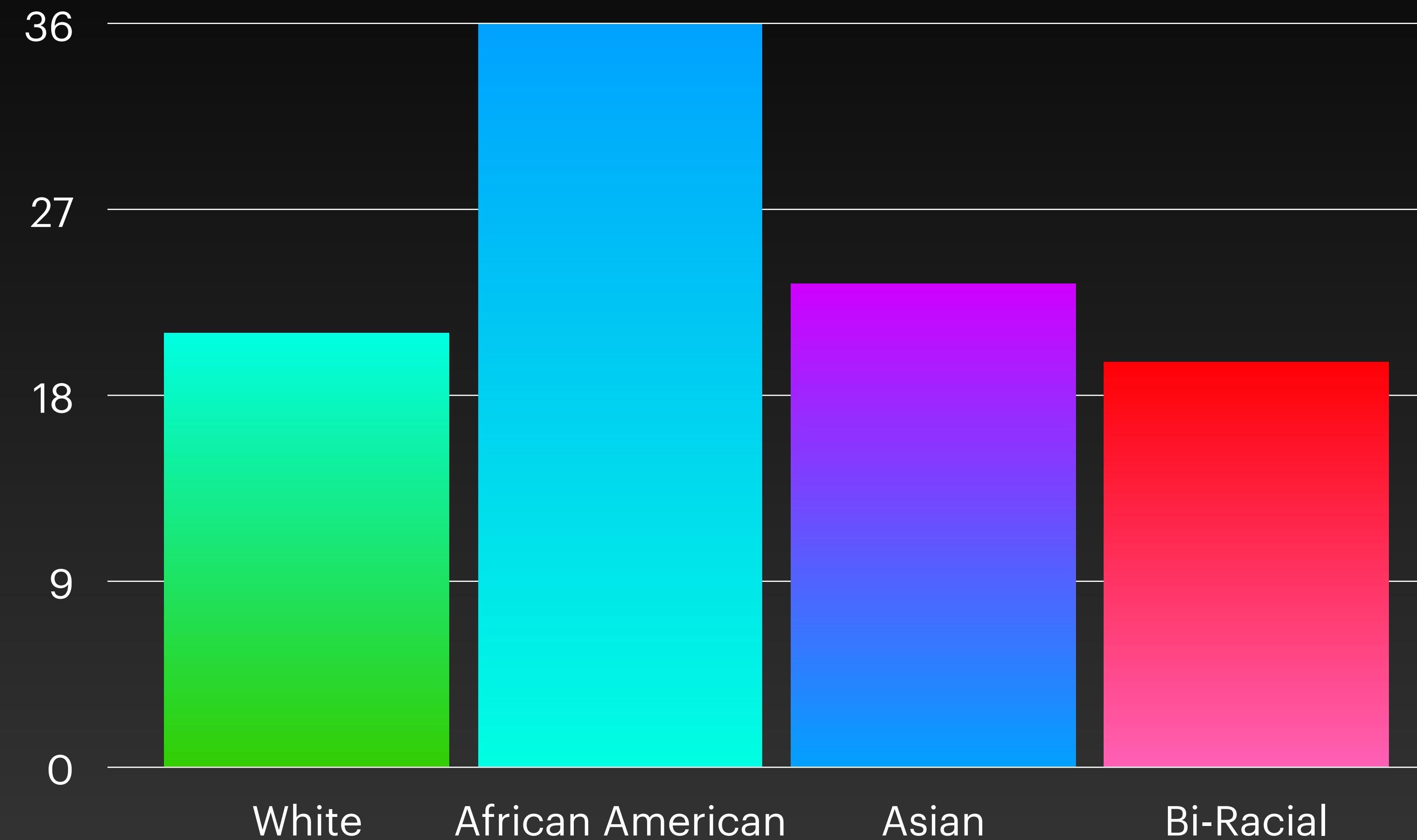


Minority Class Considerations

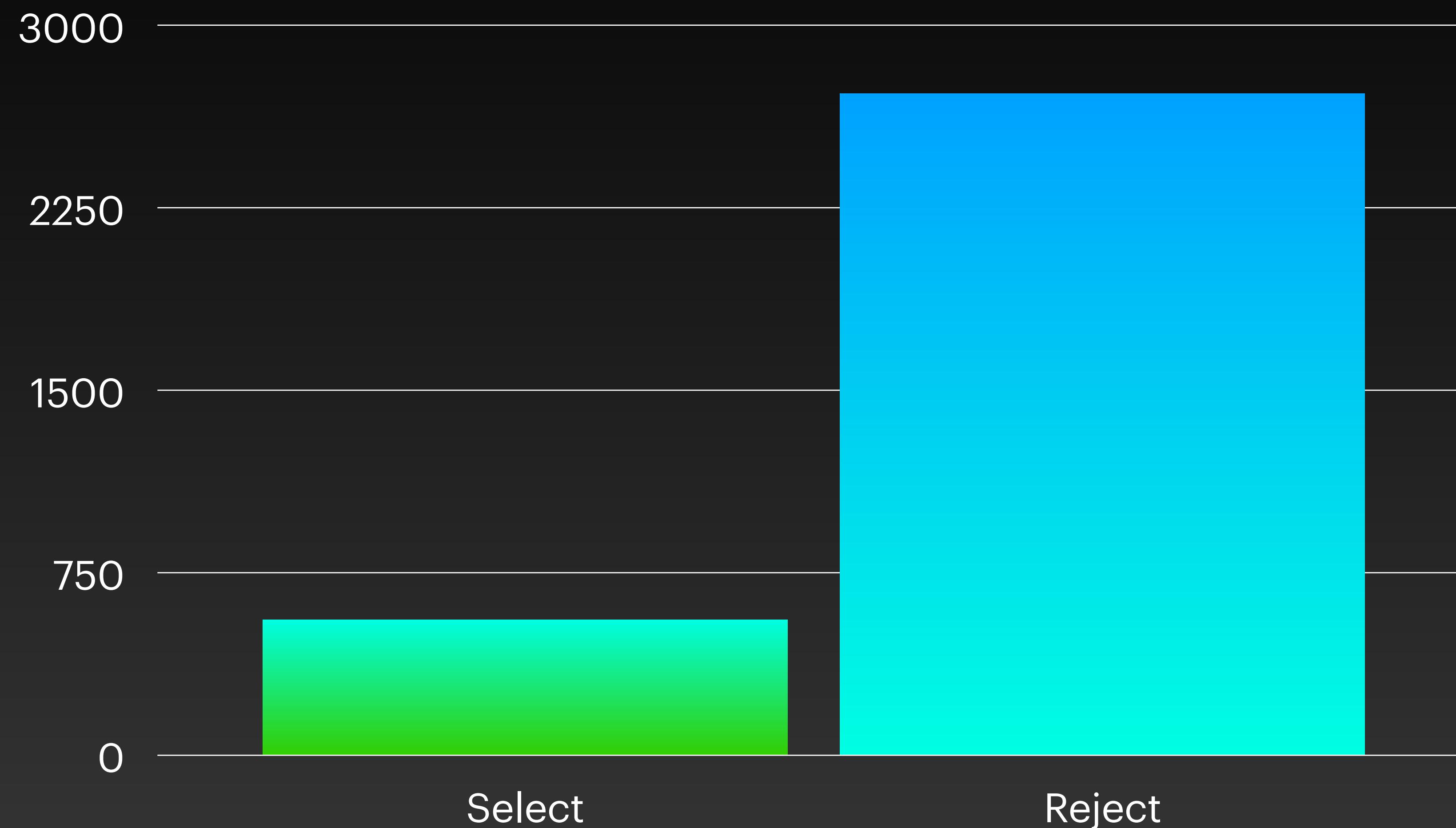
- horizontal augmentation of selects
- Binary Accuracy
- Loss Metric



Racial Breakdown of Overall Data

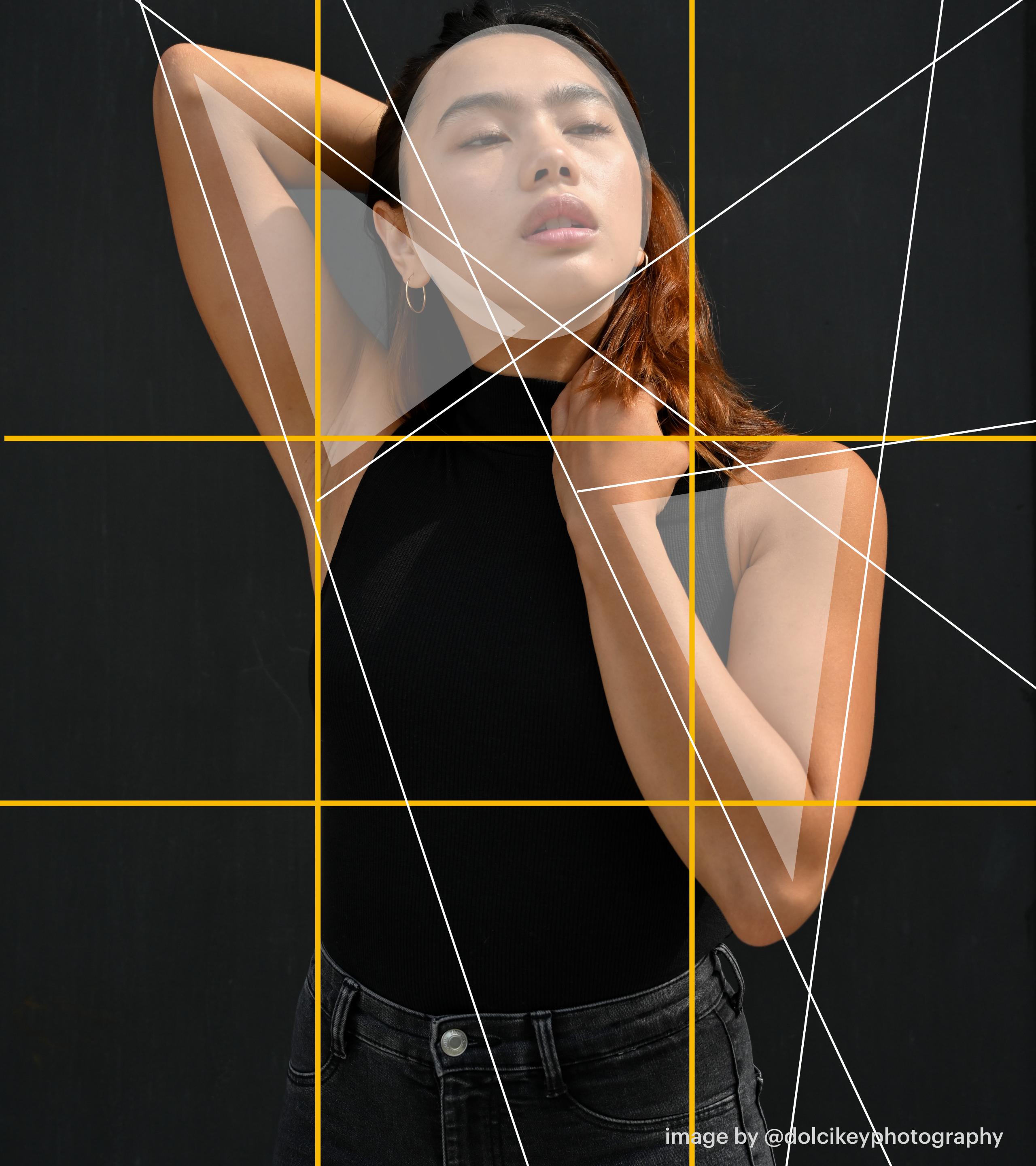


Classification of Data



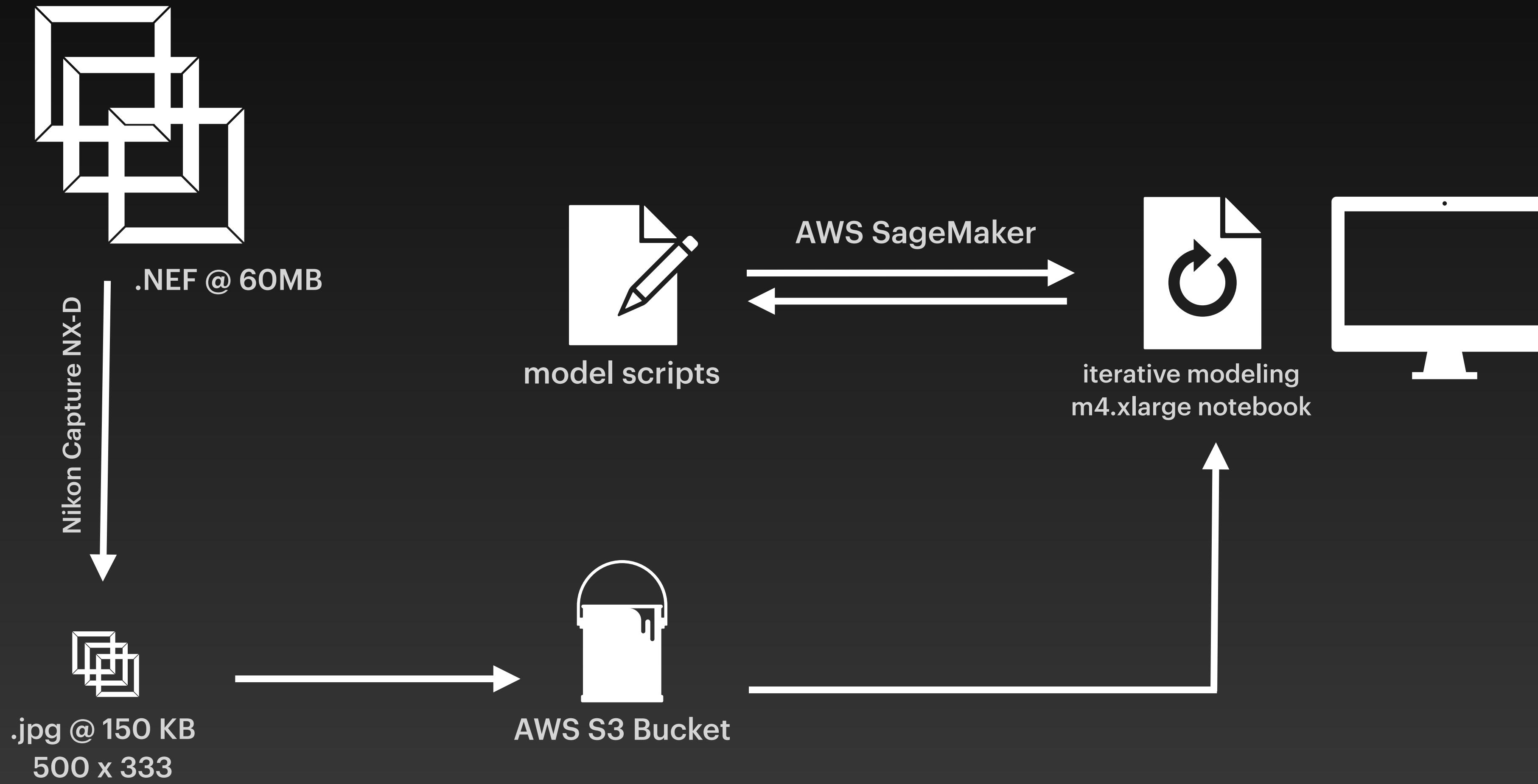
Artistic Bias

When selecting images, I relied on what I've learned over years of being both behind and in front of the camera. Prioritizing focused eyes/faces, balanced light, framing rules (rule of thirds), consideration of geometric shapes.



Modeling using AWS

Modeling Pipeline



Metrics

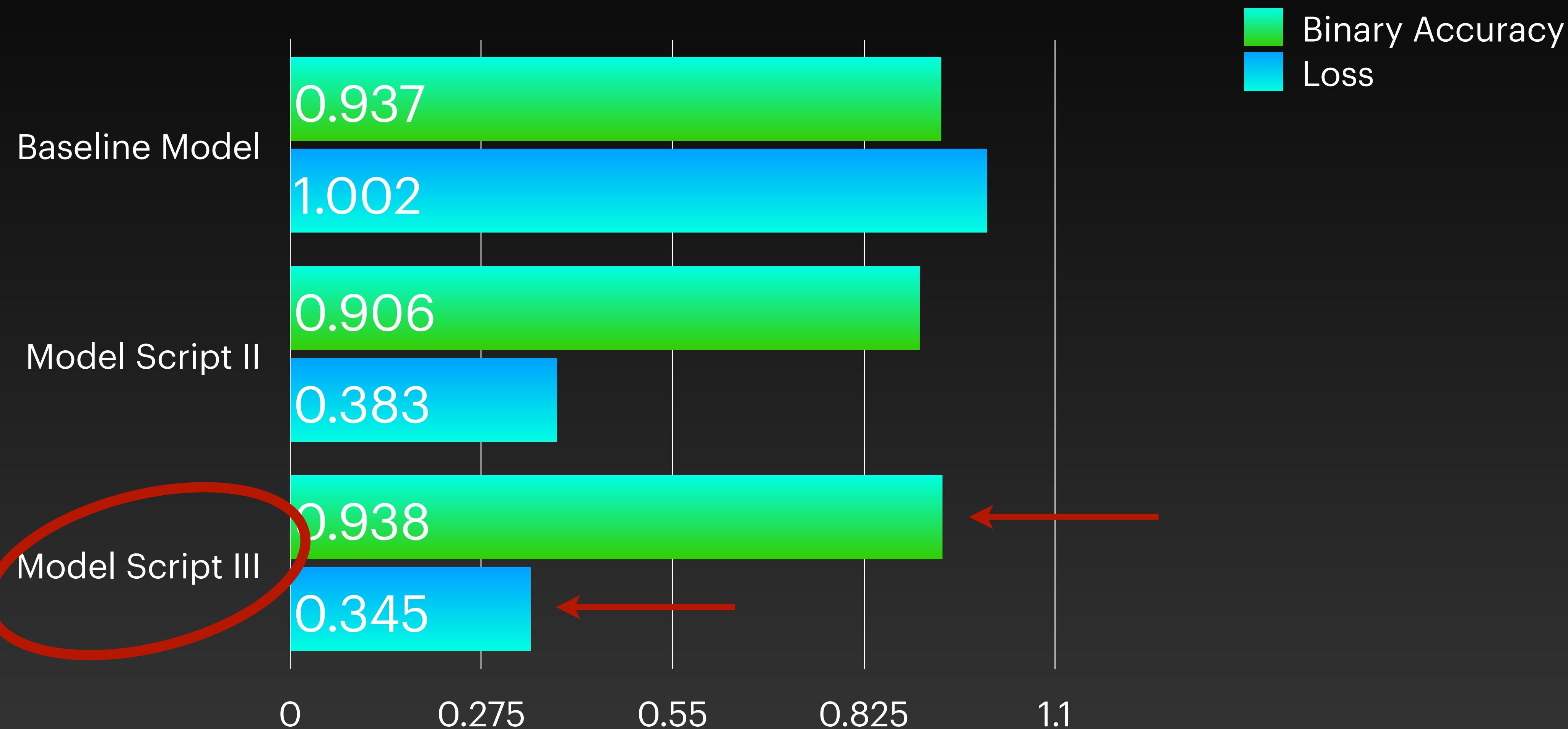
Model parameter:

`_tuning_objective_metric`
`recal` and `f1_score` (internal to model, keeps these
scores in mind during training)

Metrics

- Loss Function
 - Binary Cross-Entropy
- Binary Accuracy
 - Default Accuracy metric in Keras for Binary Classification

Model Preformance



Conclusion



- This model as a proof of concept shows promise.
- The model can be developed with more accuracy using additional metrics
- integration of a sigmoid activation function

Future Steps

- More data (5-10k images)
- More diverse range of models
- Script for NEF compression
- Better compression techniques
- Sigmoid Activation Function
- Additional Layers for photo grading



image by @dolcikeyphotography

Sources and Credits

- modeling coding references
 - Paul Breton AWS SageMaker Tutorial on [Medium.com](#)
- models (A huge thanks to all these talented models who made themselves available for data collection*)
 - Samayah Jaramillo [@samayahjaramillo](#)
 - Kristen Heavey [@kristenheavey](#)
 - Beth Chasteen [@officialchasteen](#)
 - Joana Pauline [@thejoannapauline](#)
- Troubleshooting and code debugging help from Aren Carpenter

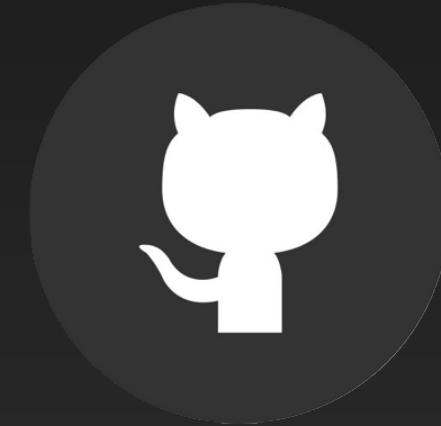
*I traded edited images to be delivered to each model post final presentation for usage of this data in my data set/presentation. This data set will remain private.

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medium



github



instagram

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