Analysis of appeal, quality, and realism for Instagram-like filtered real photos

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Code&Data: `http://bit.ly/4wjAbh2`

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Motivation

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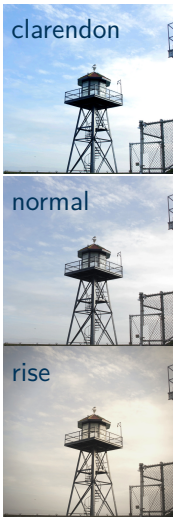
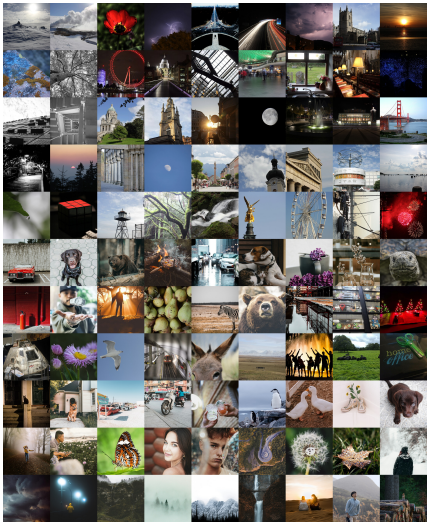
- a lot of photos are taken and shared in social networks
  - not all images are of high appeal
  - most social media platforms offer filters or edit capabilities
  - e.g., Instagram enhancement filters
- only a few studies evaluate such filters [9, 12, 7, 6]
  - usually subset of filters [9]
  - small amount of images or types [7]
  - what is evaluated? mostly aesthetics [9] or preference
- $\rightarrow$ **large scale evaluation of Instagram-like filters**
  - image appeal, quality, and realism



Approach – dataset and filters

- 99 images selected to cover a wide range
  - 56 from AVT-ImageAppeal-Dataset [3]
  - 43 from Unsplash-Lite-Dataset [11]
- 10 filters + normal, similar to Instagram
- overall: 1089 images to be evaluated

selected filters from the pilgram [8] library



all base images

Approach – study design

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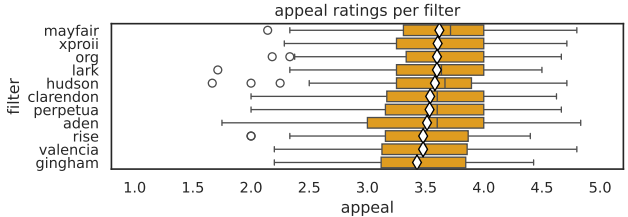
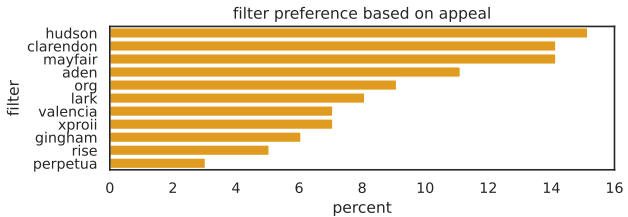
- online study with our publicly available tool AVRateVoyager [10, 5]
  - adjustments to welcome screen, instruction page, rating scheme
  - e.g. providing definitions (c.f. [4, 3]):
    - appeal= "the quality of being attractive or interesting"
    - quality= "technical quality of the images (e.g., considering visual distortions)"
    - realism= "how realistic the image was"
- 49 participants via Clickworkers
  - 4 EUR payment per participant, 15-20 mins
  - each participant rated 150 uniform randomly chosen images, similar to [2, 3]

Results – image appeal

- top filters:
  - mayfair, xproii, and org
- lowest rated filters:
  - rise, valencia, and gingham

- preference:
  - count filters with max (appeal) score per base img
- top filters:
  - hudson, clarendon, and myfair





Results – image quality

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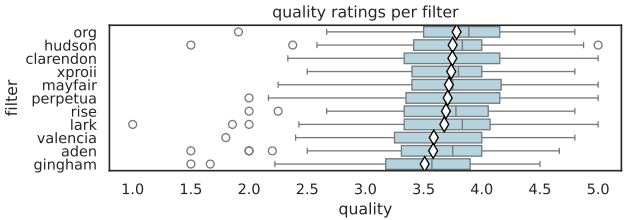
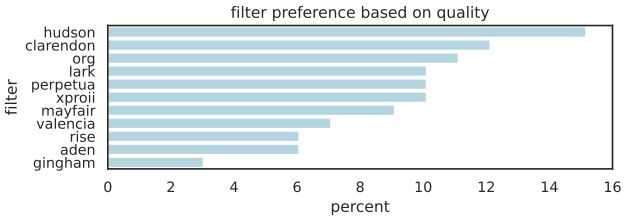
- top filters:
  - org, hudson, and clarendon.
- lowest rated filters:
  - valencia, aden, and gingham
- preference top filters:
  - **hudson, clarendon**, and org





Results – image realism

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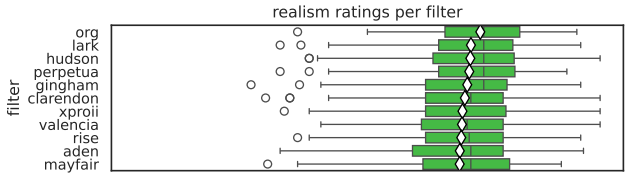
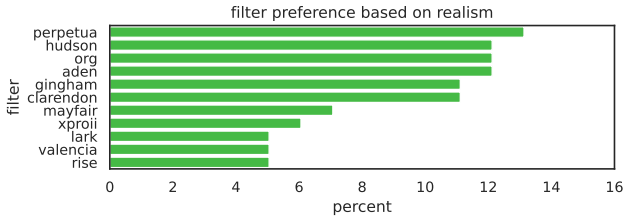
- top filters:
  - **org**, lark, and **hudson**.
- lowest rated filters:
  - rise, **aden**, and mayfair

- preference top filters:
  - perpetua, **hudson**, and **org**





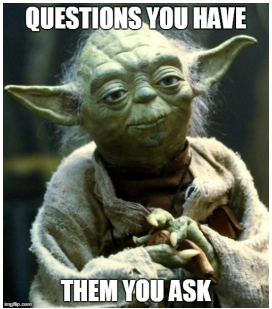
Results – SoA objective features/models

- image features [3]
  - open source tool
- quality/appeal models (PyIQA [1])
  - top-6 (appeal+PCC)

Conclusion, Summary and Future Work

- core idea and results
  - evaluation of Instagram-like filters: image appeal, quality, and realism
  - 99 base images, 10 filters = 1089 annotated images
  - online study with AVRateVoyager [5]
- **open source dataset & evaluation**
  - preferred/highly rated filters: e.g. hudson
  - evaluation of score differences ($>$ 70% of base images can be improved with filters)
  - cross comparison of image appeal, quality and realism (low/mid correlations)
  - objective evaluation
- future work:
  - Instagram-like filters for AI generated content
  - adjust or develop better IQA models

Thank you for your attention



. . . . . are there any questions?

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