



The Norwegian
Colour and Visual Computing
Laboratory

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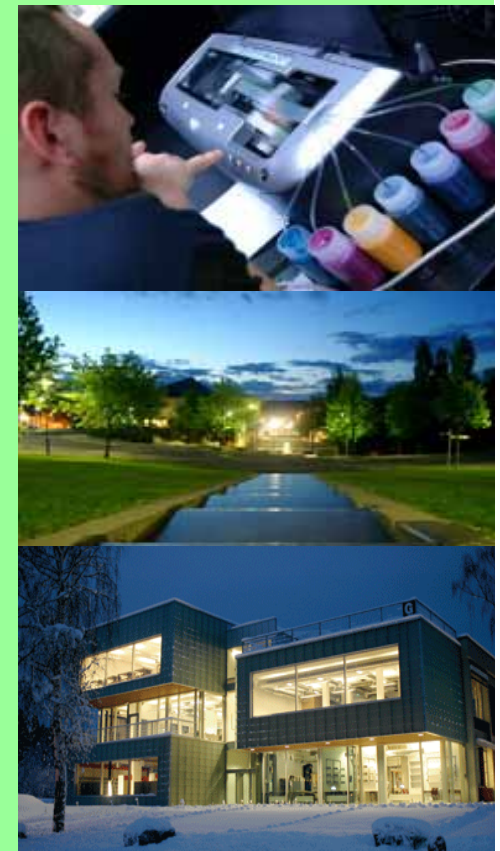


Achieving common colour appearance on different substrates

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Introduction

- Explore gamut mapping aspects of Common Colour Appearance
- Common Colour Appearance in different substrates
- “CIE subjective accuracy”¹



Project Overview

- Find out what observers understand to be a Common Colour Appearance
- Pair comparison task against a reference image
- The experiment only considers the *difference* in appearance of images
- Does not concern the suitability of different substrates' colour gamuts



Image A

Reference

Image B



Test Images





Image Adjustments

Gamut reduction and gamut mapping strategies used:

1. Linear change in lightness
2. Chroma change by using a curve
3. Clipped lightness
4. Blackpoint compensation
5. Clipped chroma



Experimental Setup



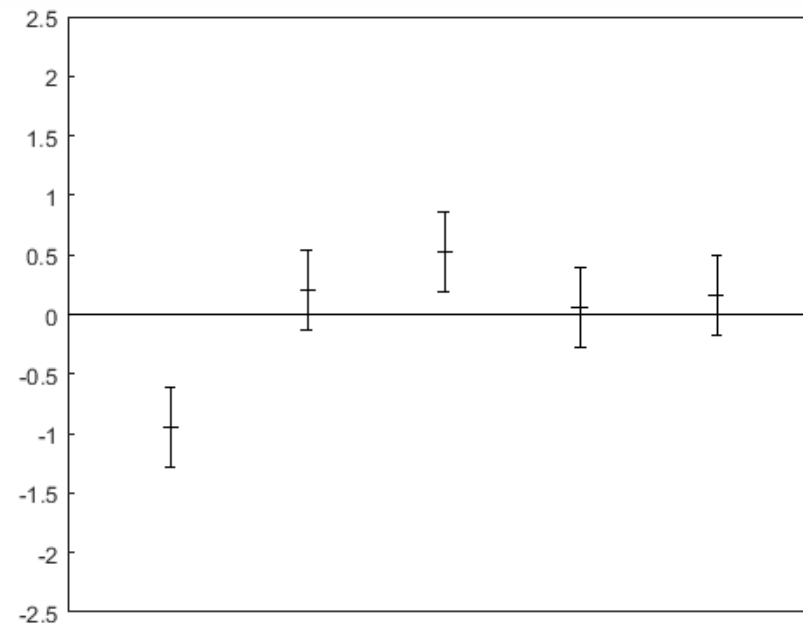
“Left”

“Right”

Reference Image



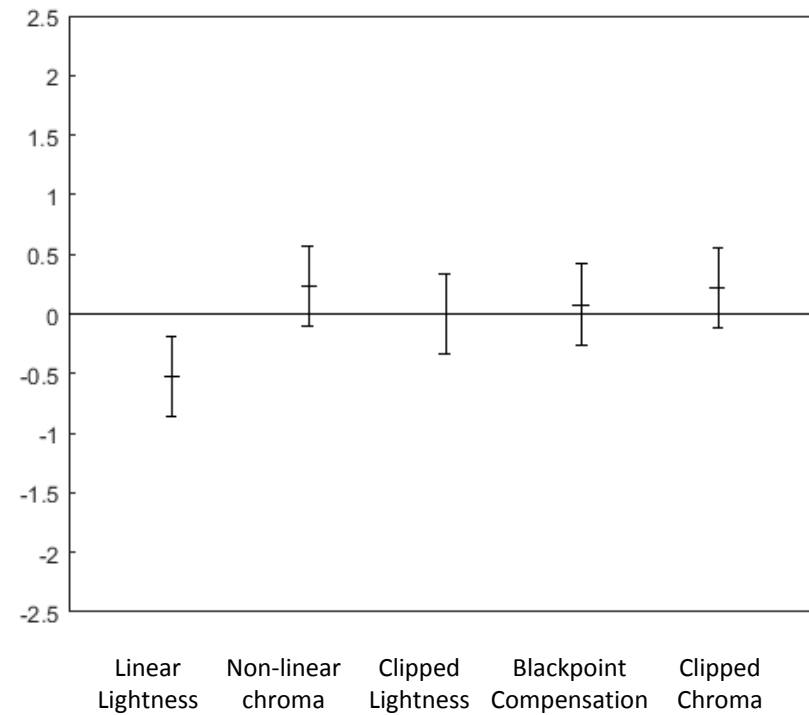
Results for Image 1



Linear Lightness Non-linear chroma Clipped Lightness Blackpoint Compensation Clipped Chroma

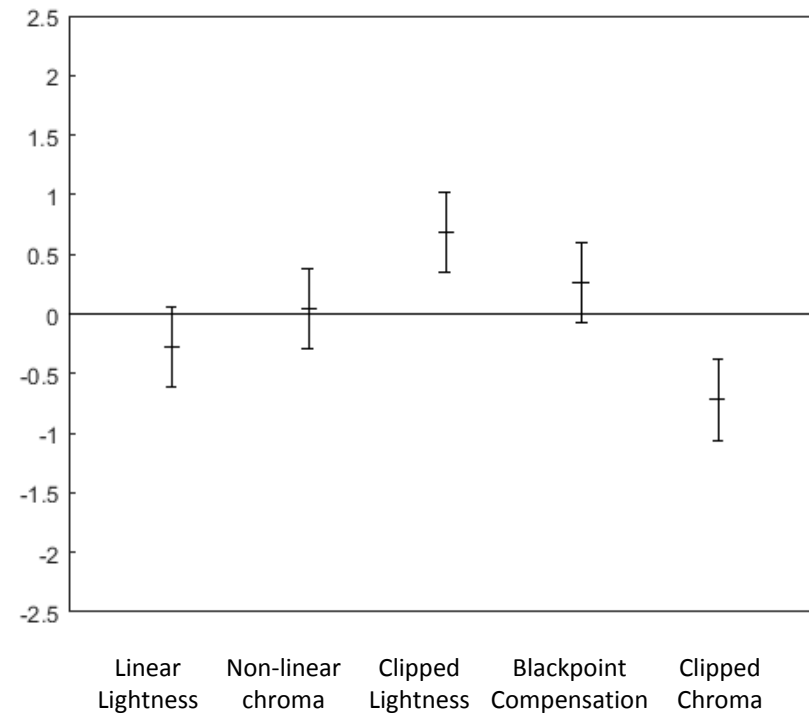


Results for Image 2



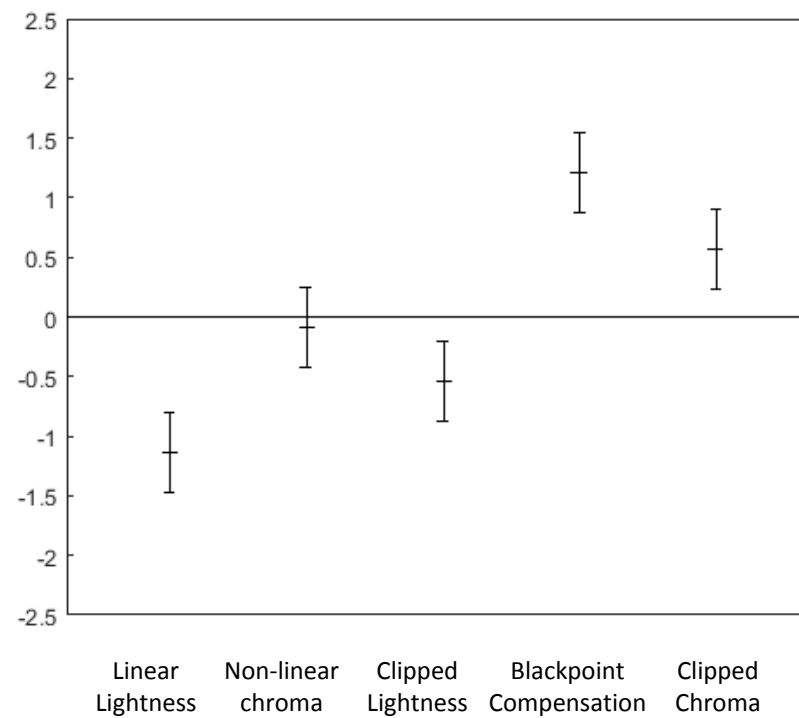


Results for Image 3



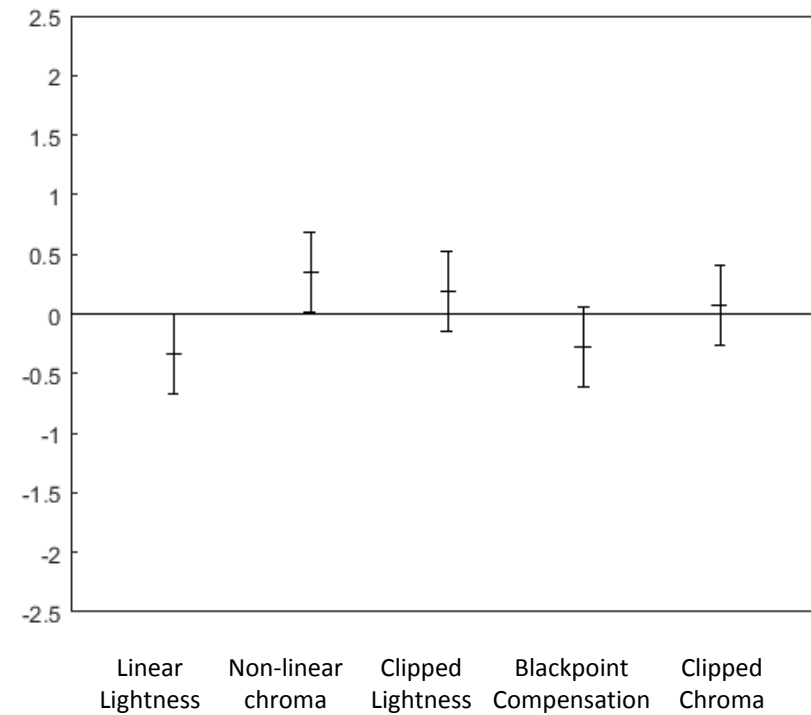


Results for Image 4



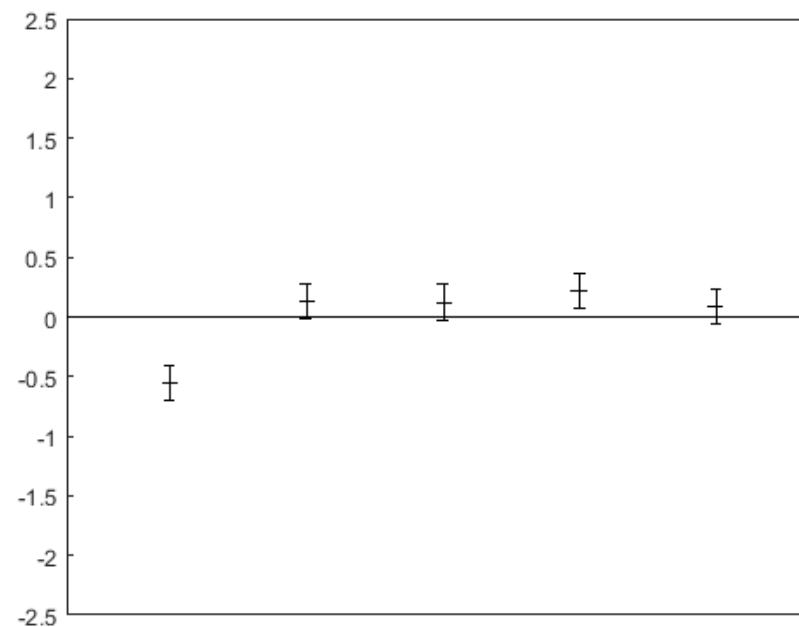
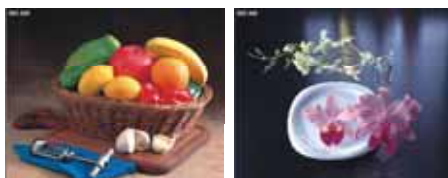
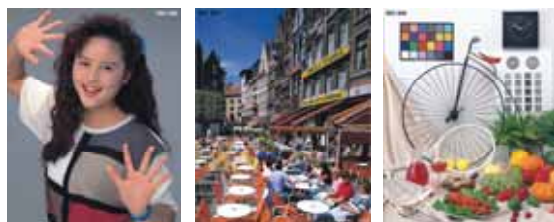


Results for Image 5





Combined Results



Linear Lightness Non-linear chroma Clipped Lightness Blackpoint Compensation Clipped Chroma



Conclusions

- A perceived reduction in lightness is disliked in image pair comparison
- Aspects of common colour appearance are highly image dependent
- Visual differences in the experimental images were not great enough to produce significant results



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Thank you for your attention

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