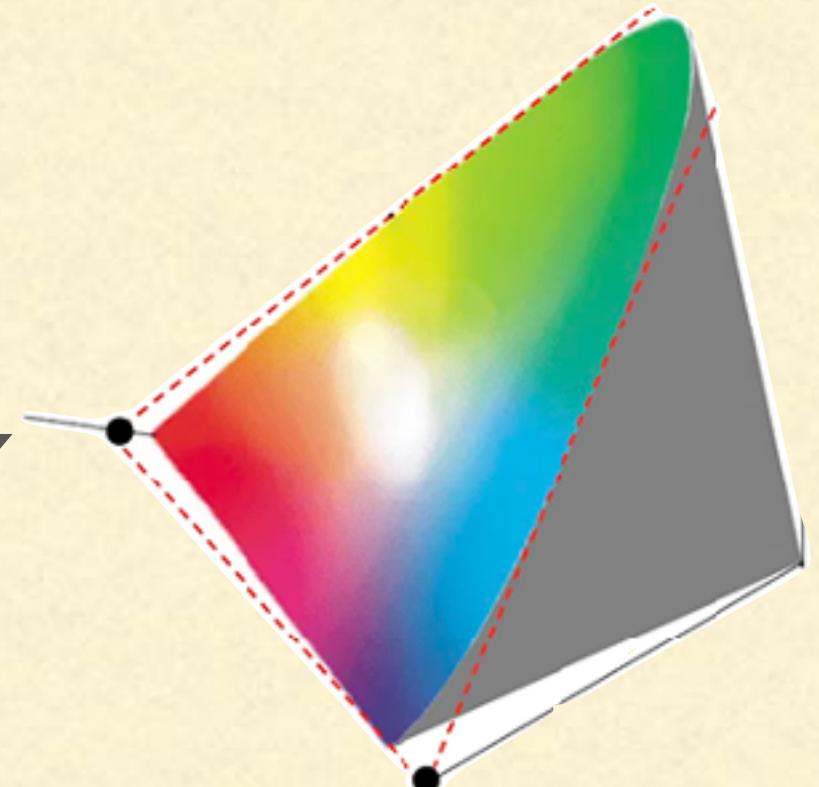


UNDERWATER COLORIMETRY

BASIC COLORIMETRY



Dr. Derya Akkaynak | dakkaynak@univ.haifa.ac.il

What Will I Learn Today?



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★A brief history of CIE - “International Commission on Illumination”



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★Key colorimetric concepts:



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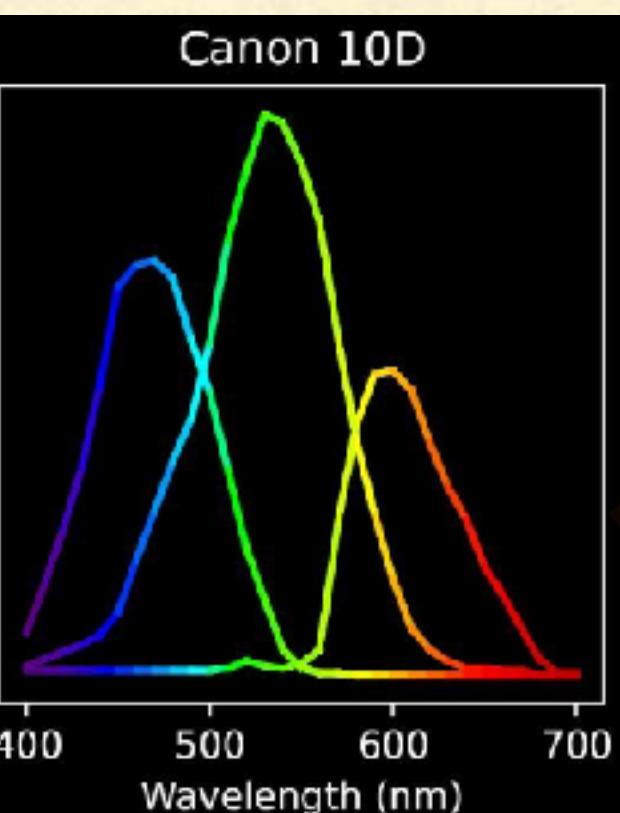
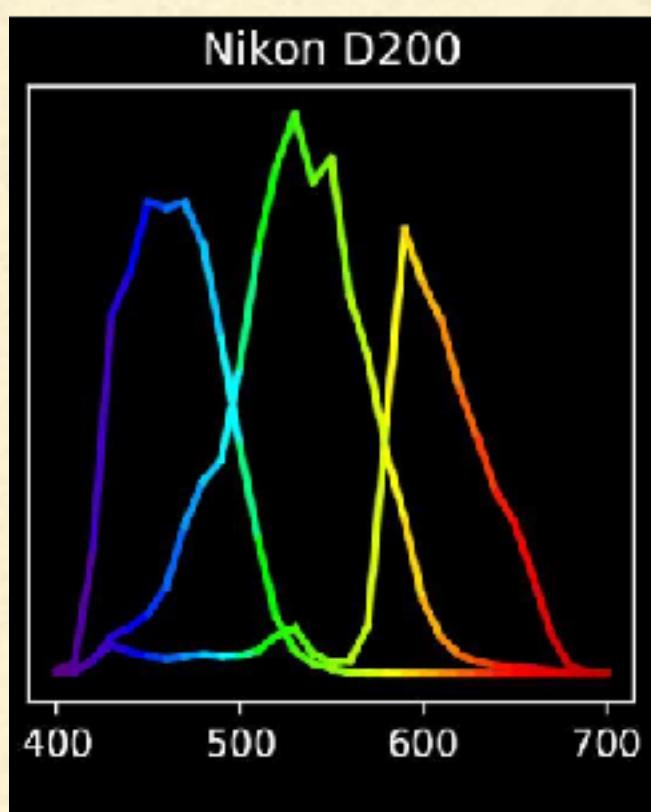




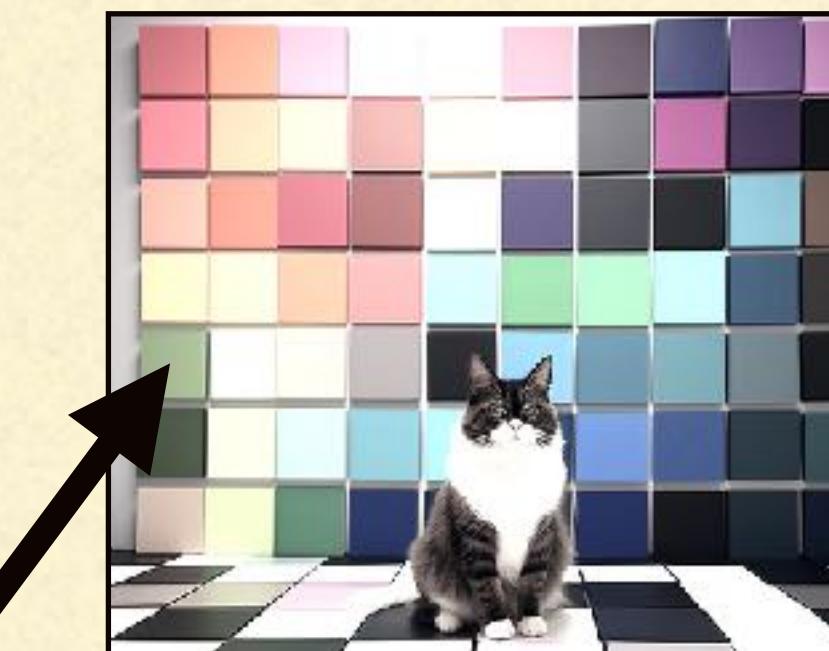
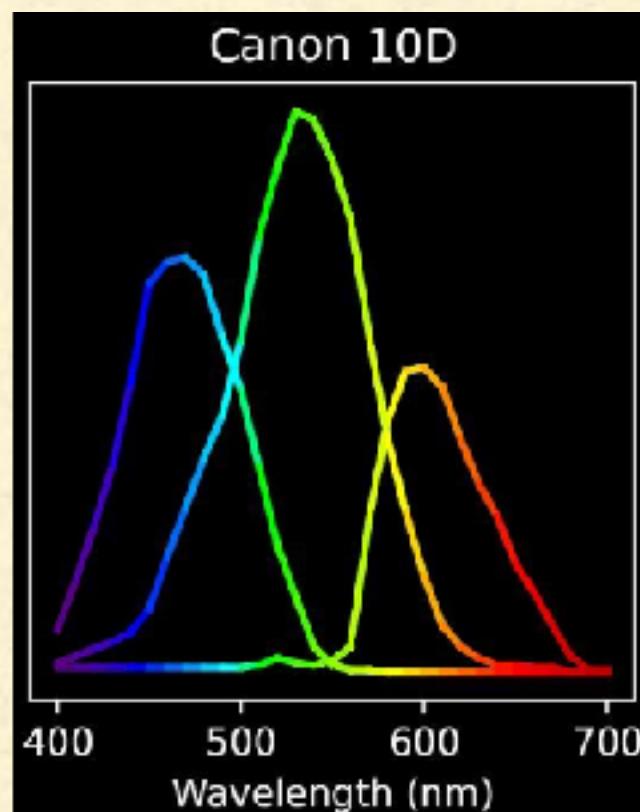
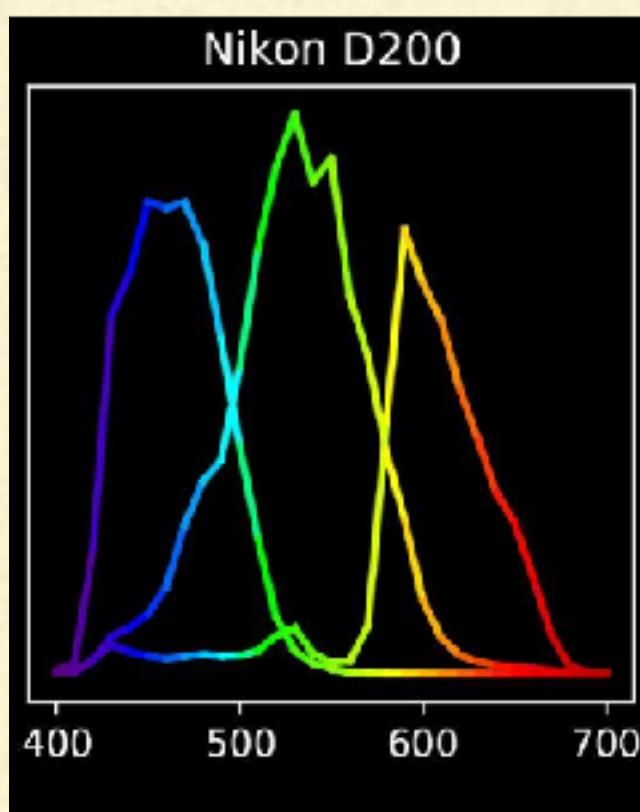
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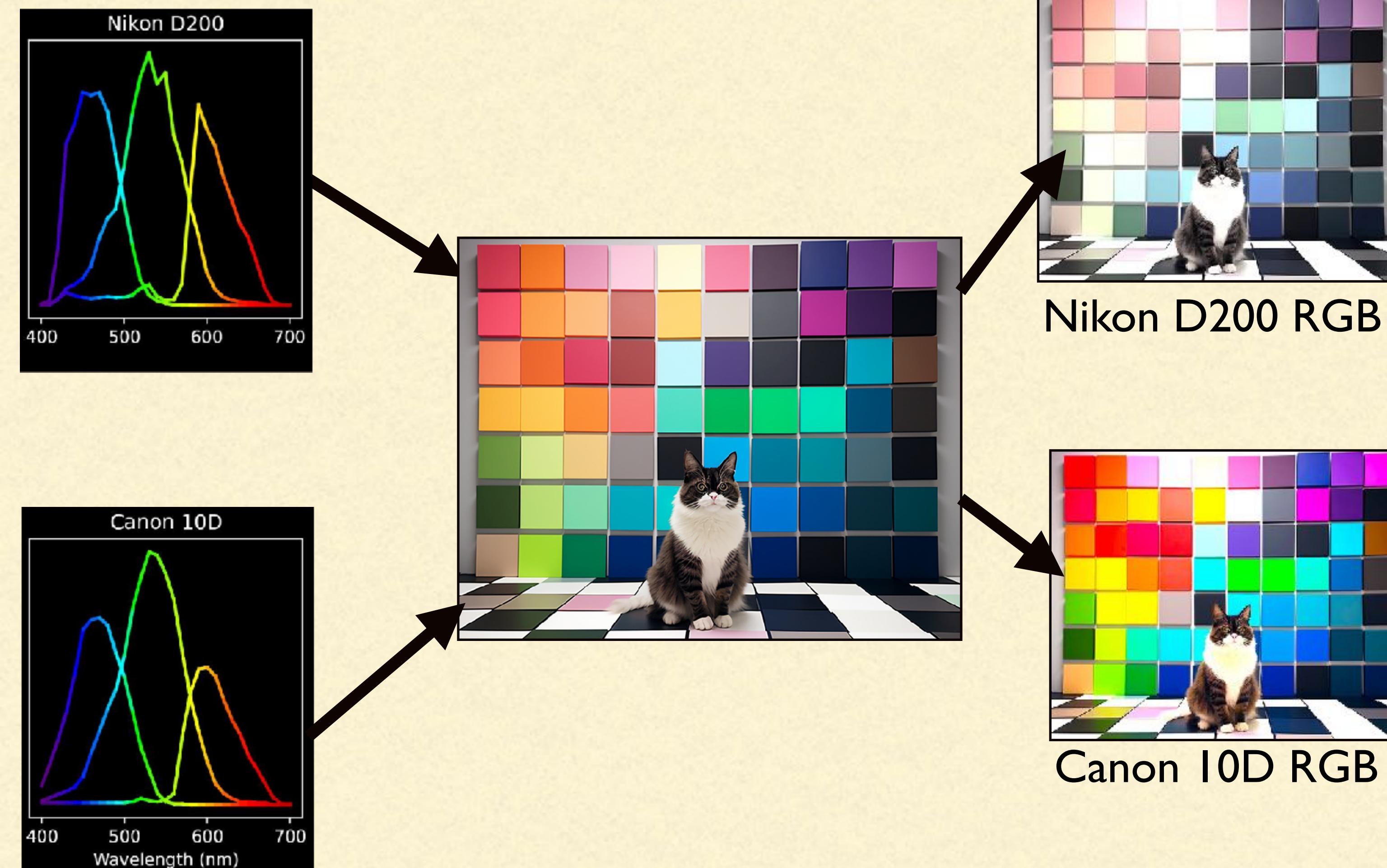


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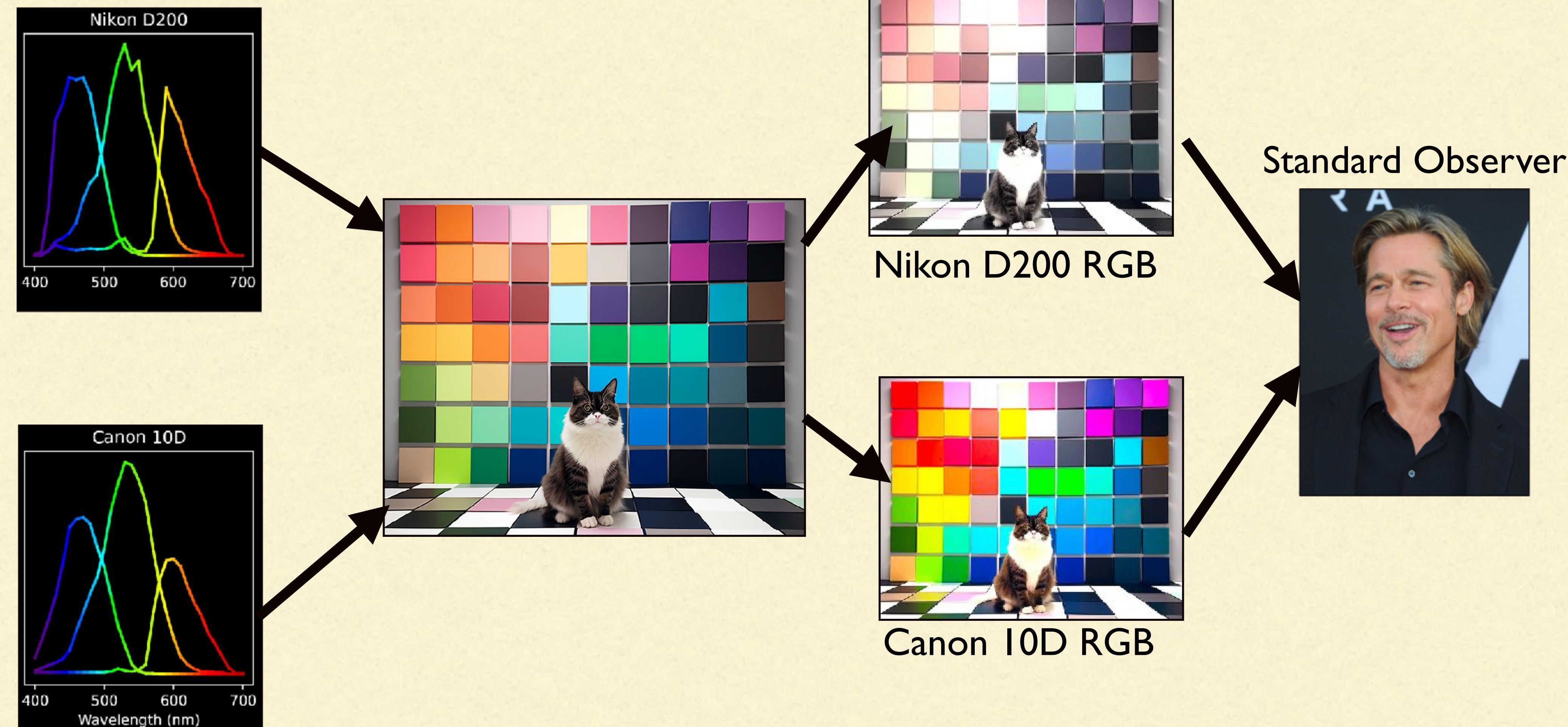


Nikon D200 RGB

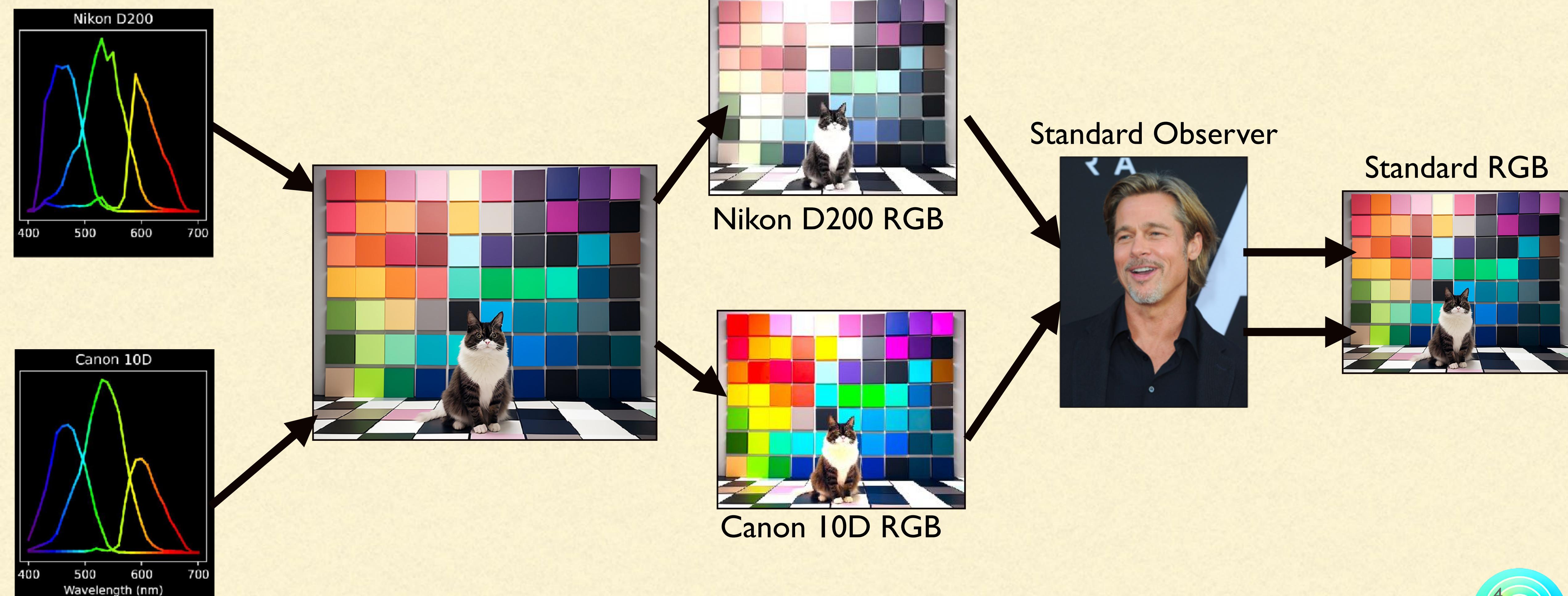
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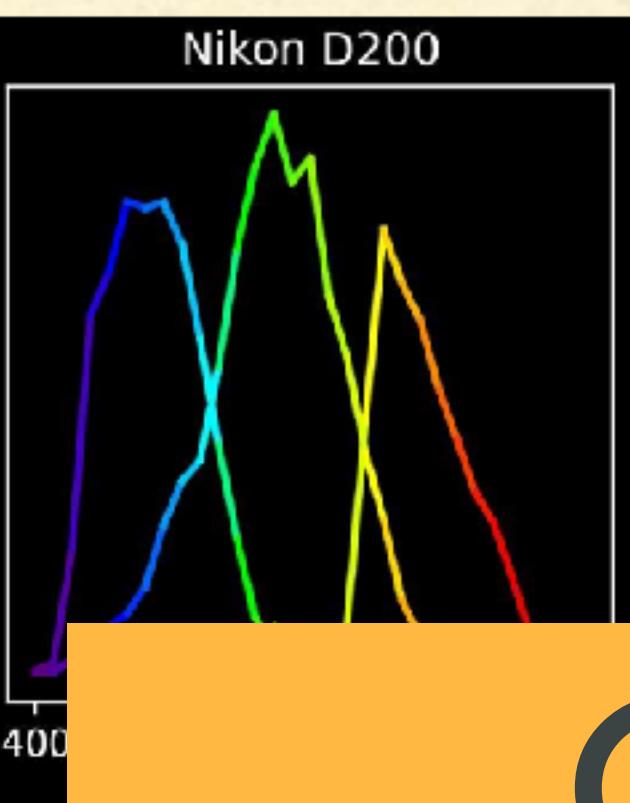
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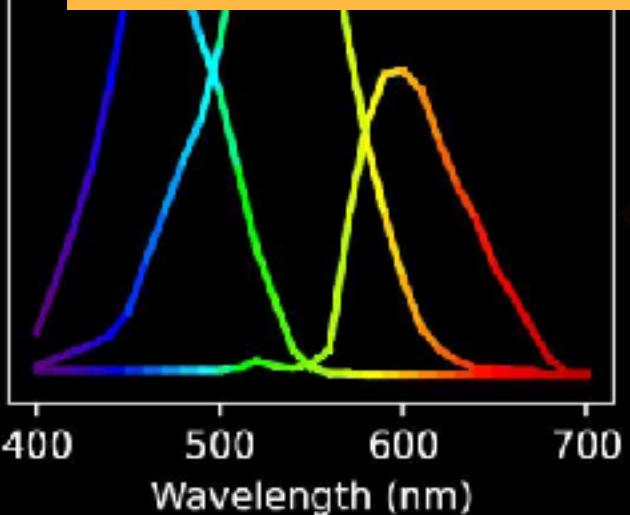
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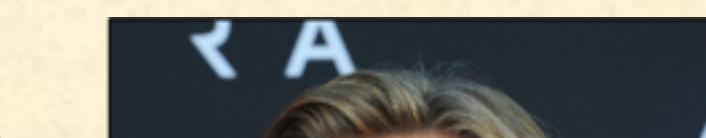
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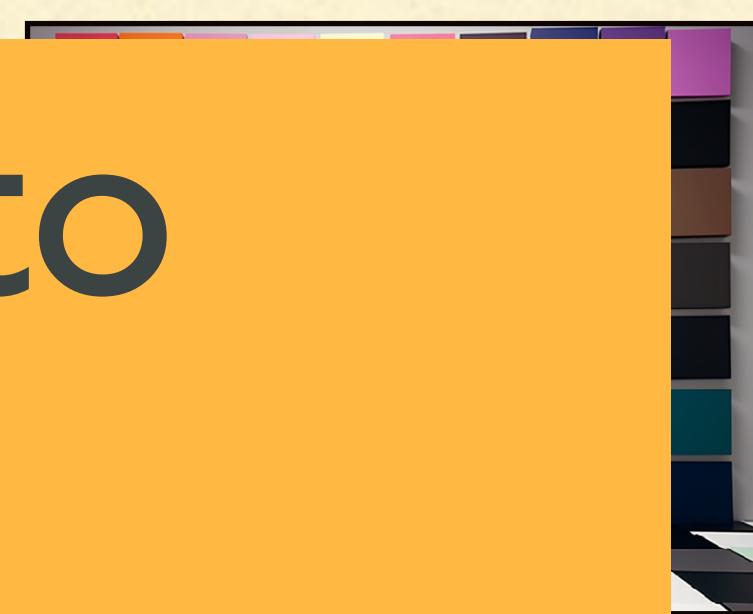
Convert camera-dependent RGB to
camera-independent RGB.



Standard Observer

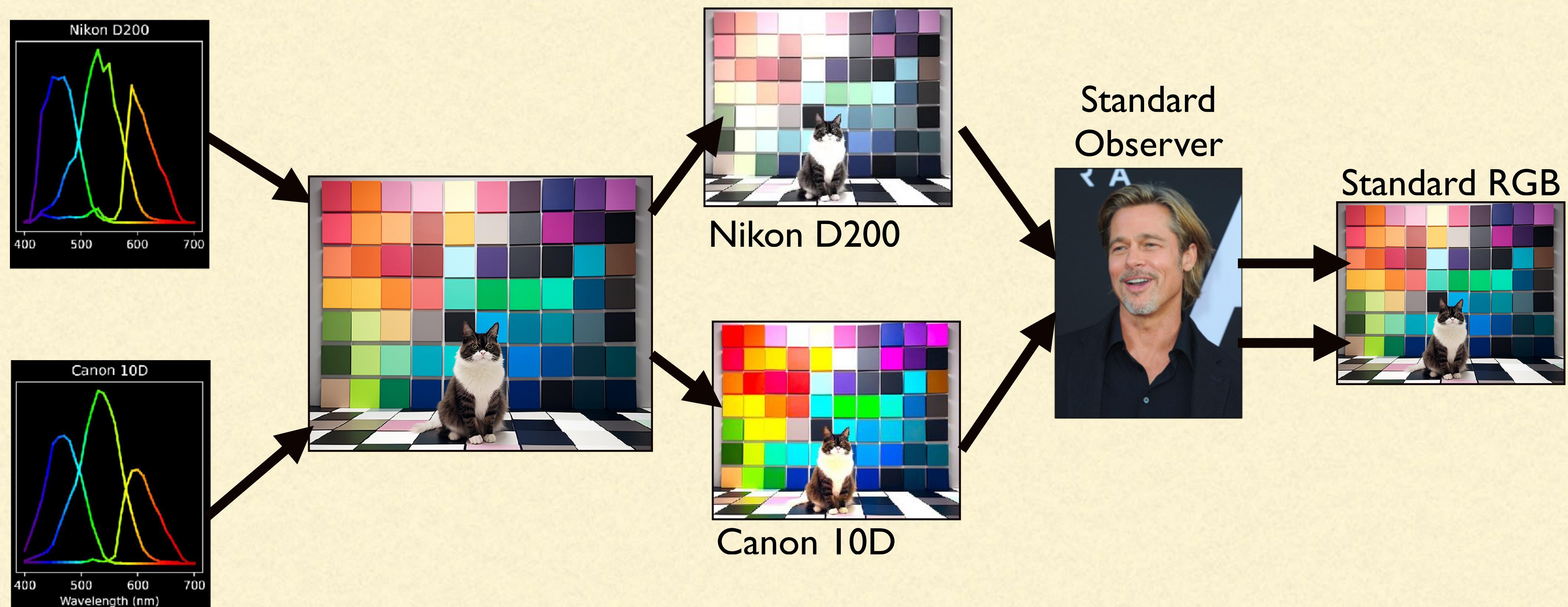


Standard RGB



Canon 10D RGB

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Convert camera-dependent RGB values to camera-independent RGB values.

WHY DO WE NEED COLOR STANDARDIZATION?

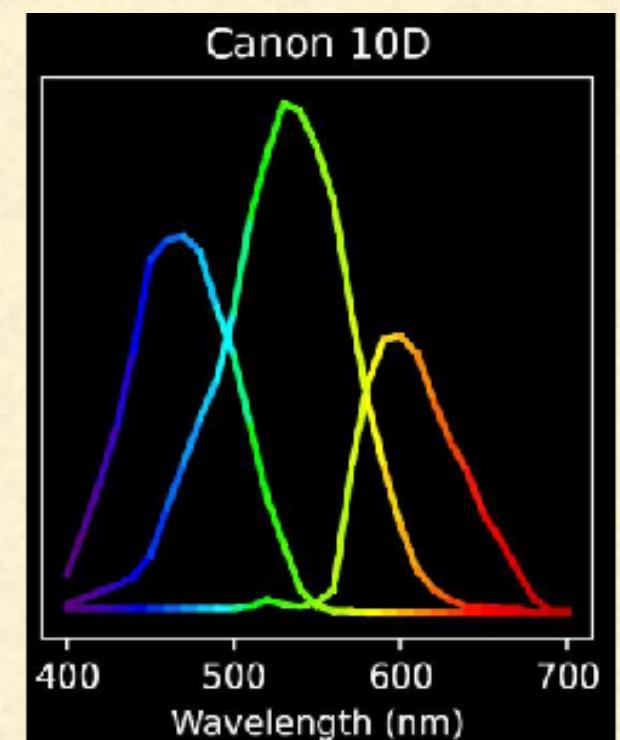
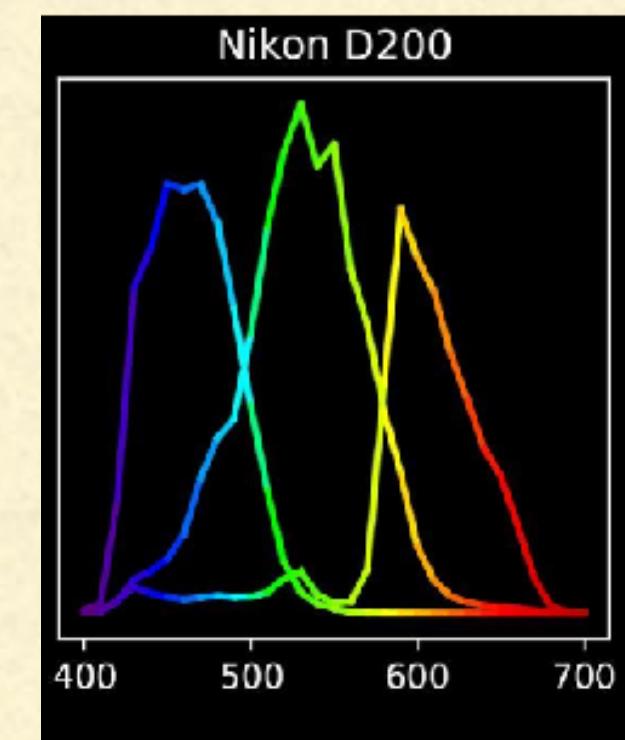
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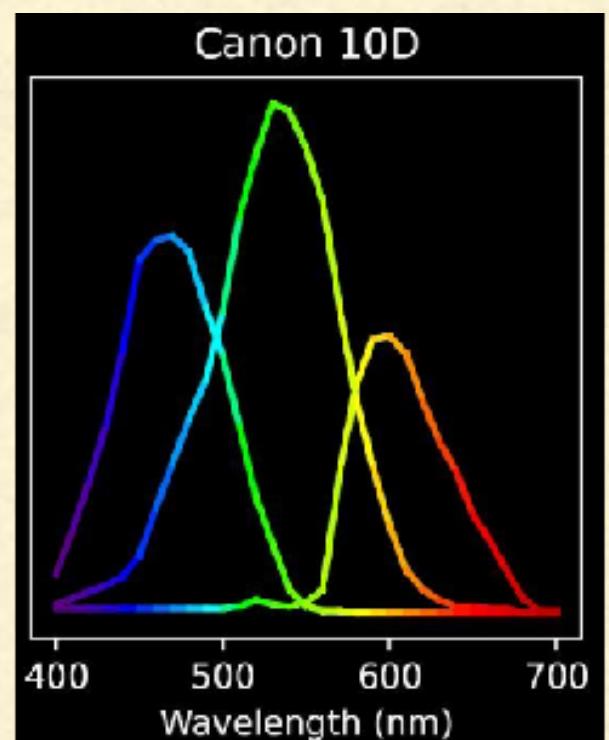
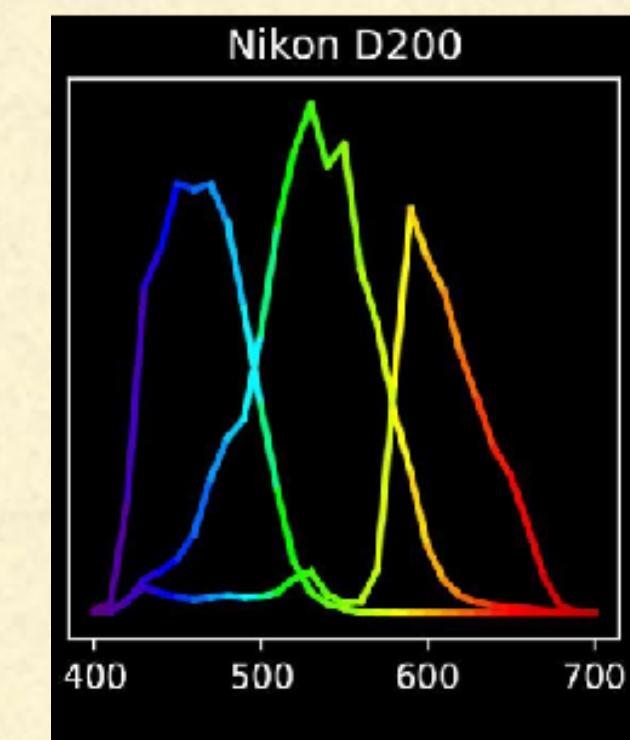
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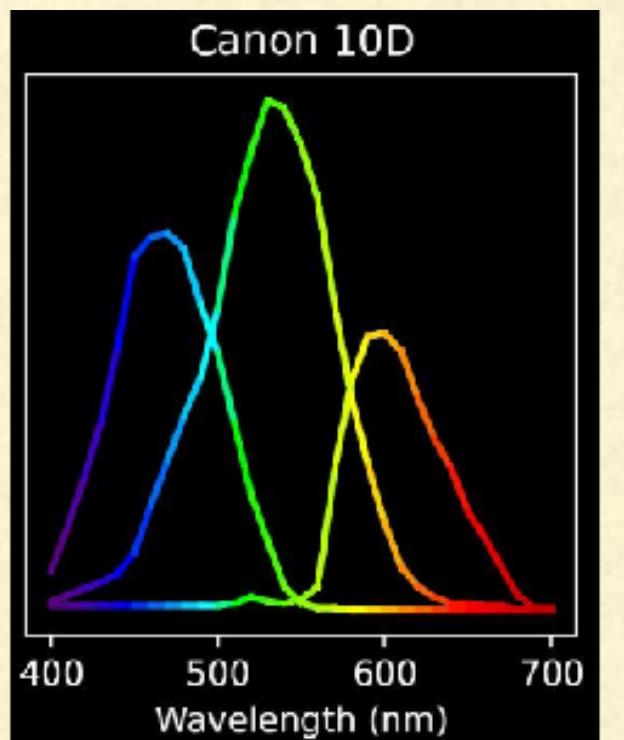
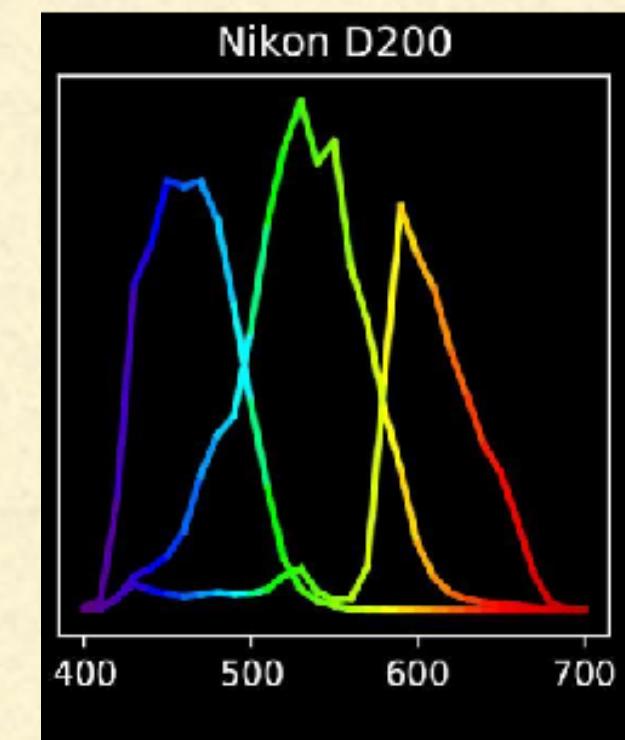
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- ▶ Consumer cameras are not scientific instruments.
- ▶ Every camera captures colors differently, in its own RGB color space.
- ▶ Manufacturers do not provide the curves of cameras.
- ▶ We want to use consumer cameras for science-worthy measurements because they are compact & affordable.



WHY DO WE NEED COLOR STANDARDIZATION?

- ▶ Long before cameras, there was a need to standardize the way we refers to colors & light.

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International Commission on Illumination
Commission Internationale de l'Eclairage
Internationale Beleuchtungskommission

The CIE was founded in 1931 as an international organization that aims to promote and coordinate scientific research and standardization in the field of light and lighting



WHY DO WE NEED COLOR STANDARDIZATION?

History of the CIE: 1913-1988:

<https://www.certifico.com/component/attachments/download/37507>



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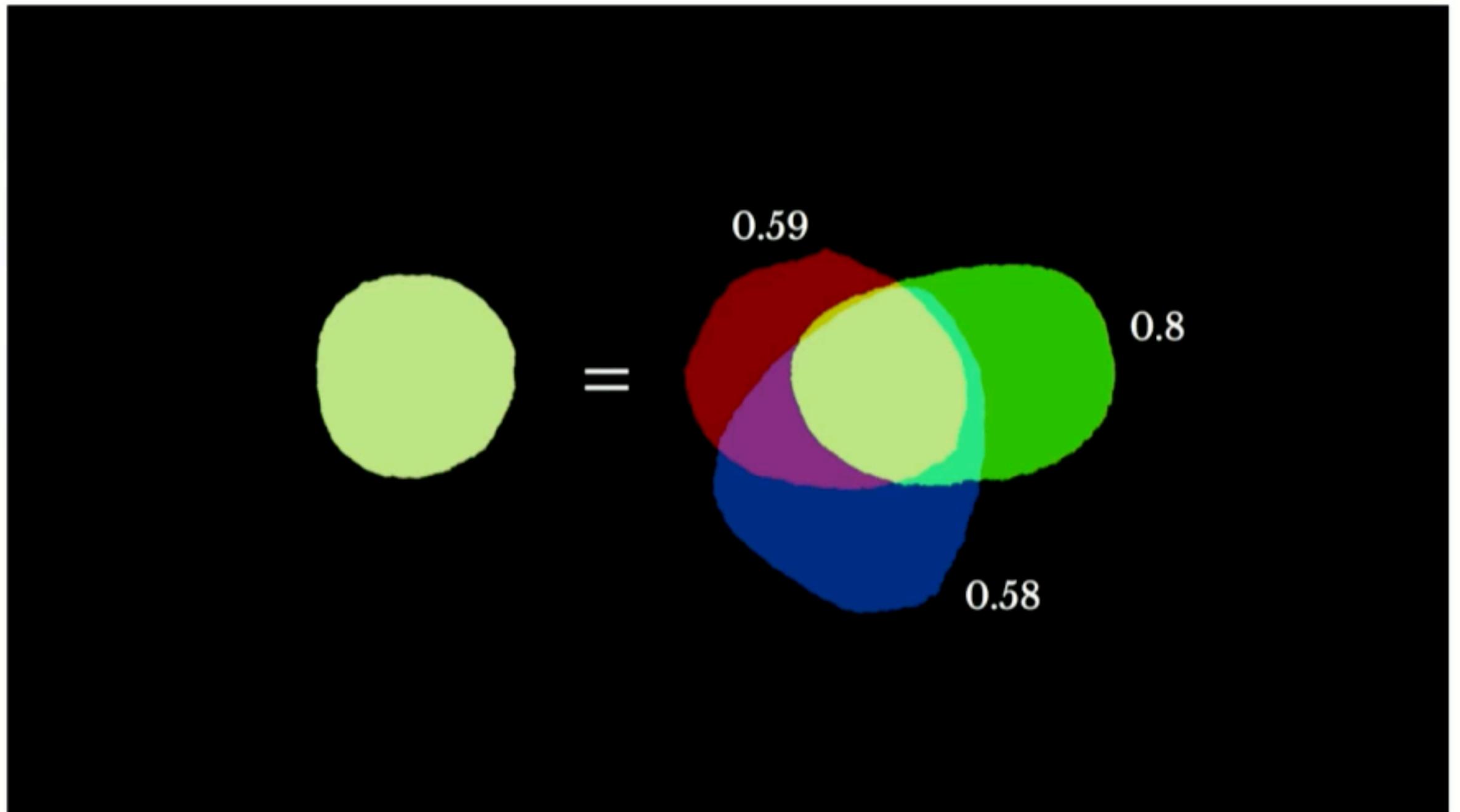


“RGB TO XYZ: THE HISTORY AND SCIENCE OF COLOR”



John Austin is a developer and designer currently living in San Francisco, California. He has been making games for nearly 13 years and has worked at Google, Microsoft, Funomena, and others. He founded and currently leads the studio, A Stranger Gravity, seeking to build thoughtful, accessible experiences that seek to enrich the lives of people across the world.

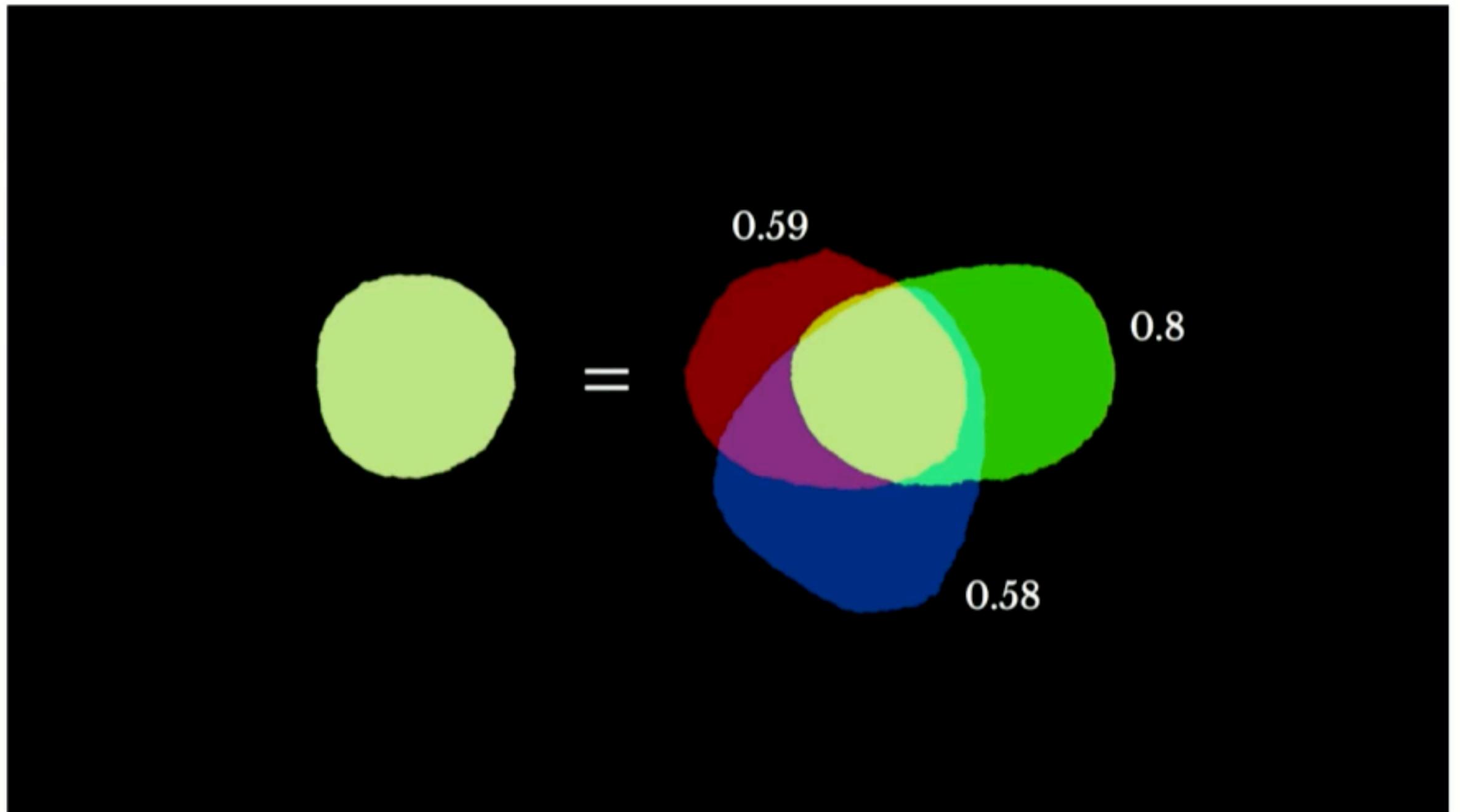
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Break

- Thank you for not using your cell phones during the lectures.
- **Brain rot:** A condition of mental foginess, lethargy, reduced attention span, and cognitive decline that results from an overabundance of screen time.

