

BRIGHTNESS, CONTRAST, AND GAMMA ADJUSTMENTS FOR IMPROVING DIGITAL PHOTOS

by Francis Chao
fchao2@yahoo.com



Web location for this
presentation:

<http://aztcs.org>

Then click on
"Meeting Notes"

SUMMARY

To enhance the details in many digital photos, you can adjust the brightness, contrast, and gamma for a specific digital photo.

Doing so "pops" out details that otherwise cannot be seen by the viewer of the photo.

CURVES

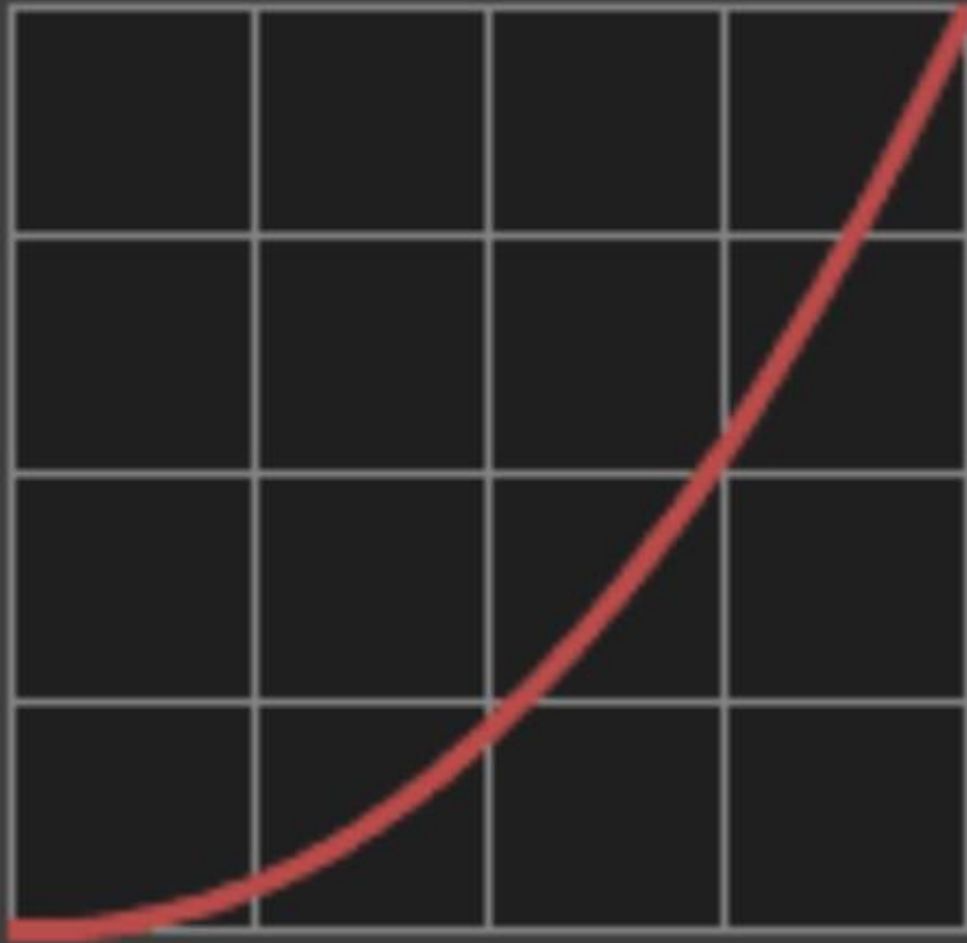
- "Curves" in photo editing means the relationship between what the camera recorded and what your eye sees in the viewed or printed output

CURVES (continued)

- In most photo-editing apps, the x-axis represents what your camera recorded and the y-axis represents what the viewer or printer showed.
- For both axes, 0 is darkest and the top-most value is the most intense or most colorful:

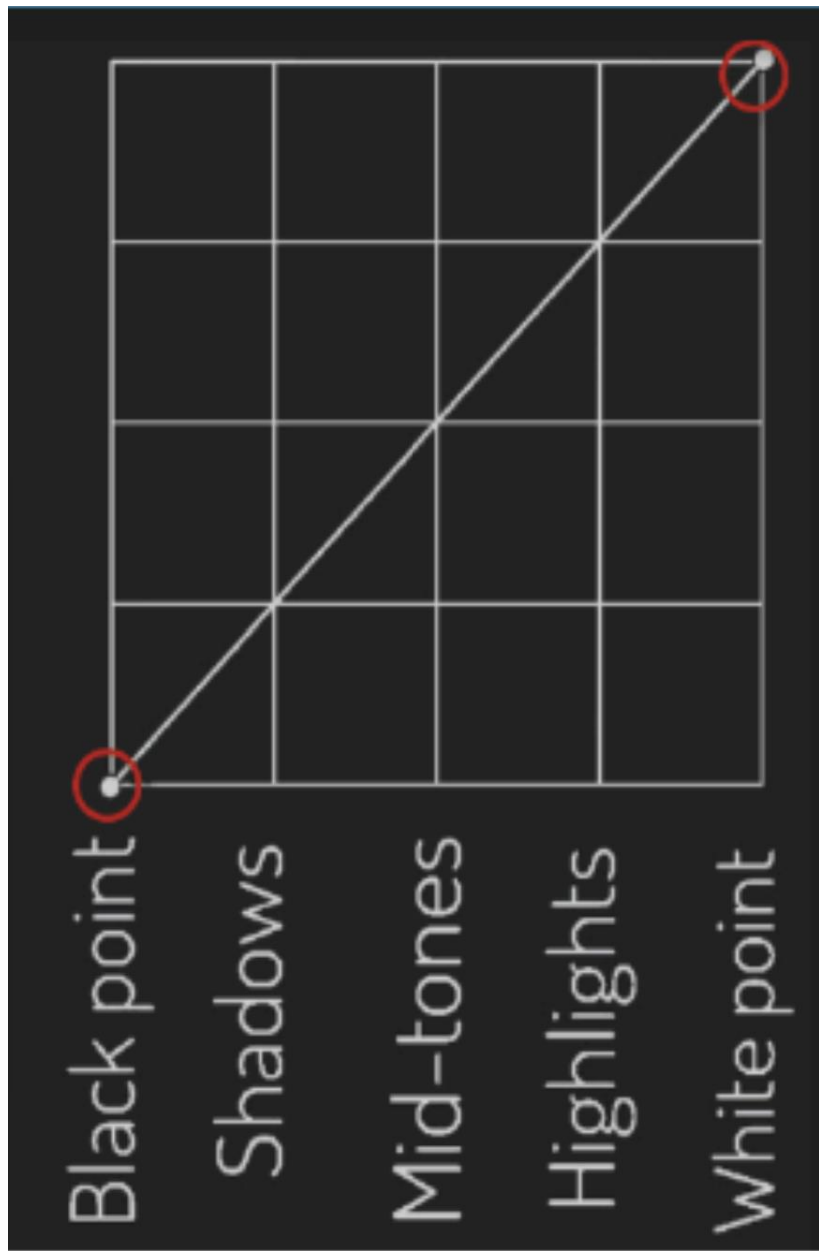
OUTPUT:

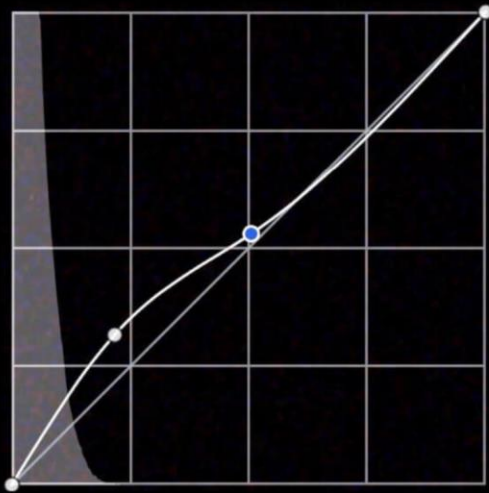
Displayed Luminance



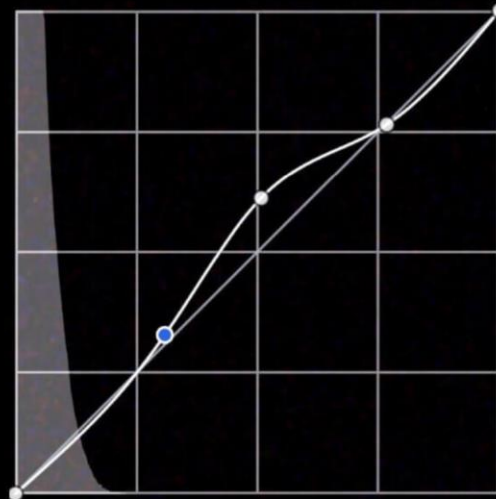
INPUT:

Recorded Value in a File

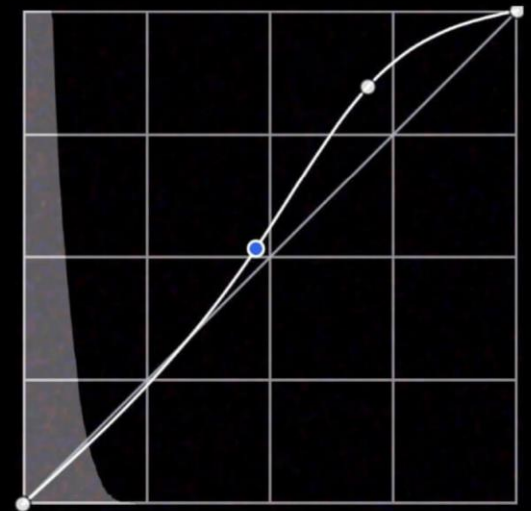




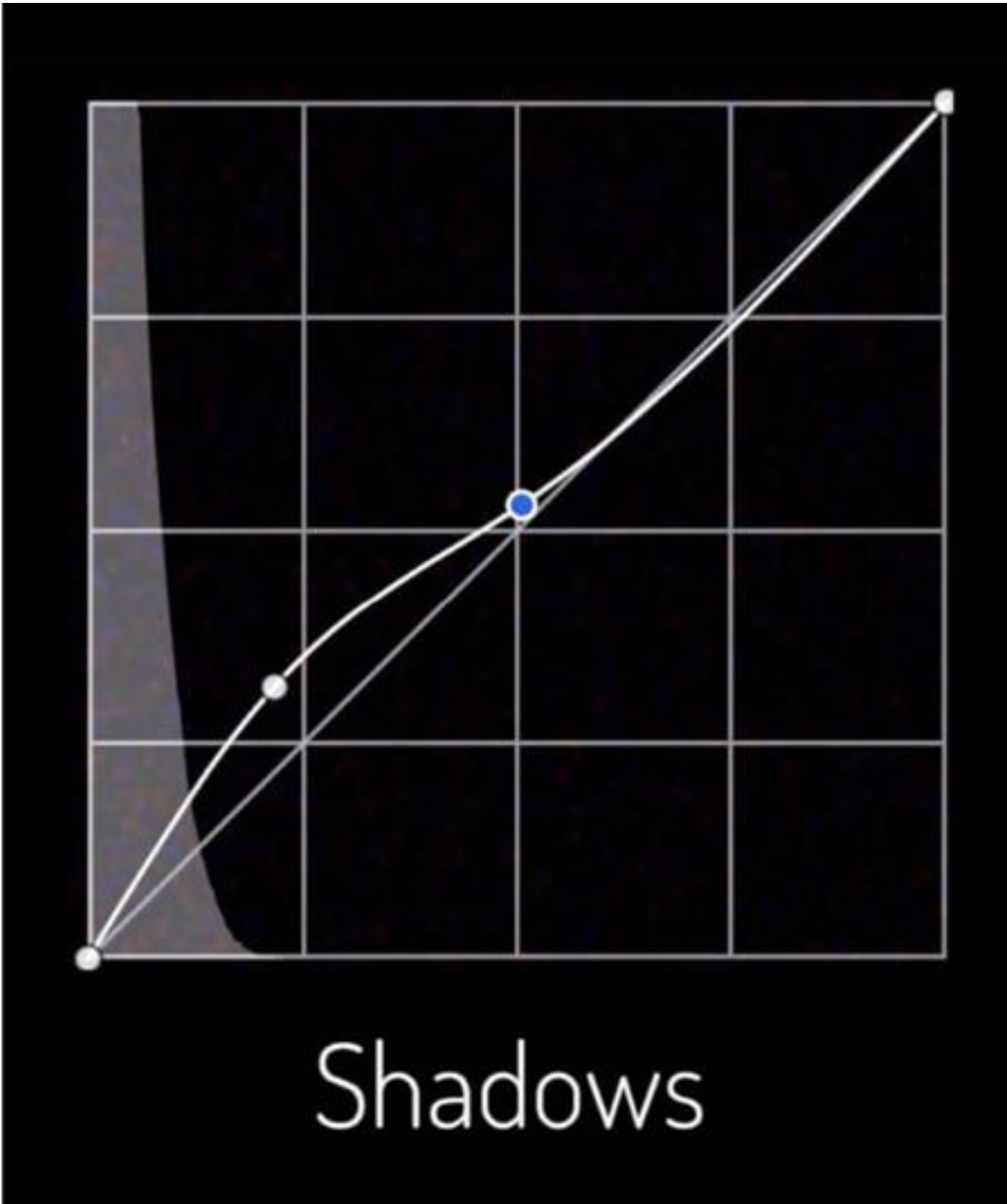
Shadows

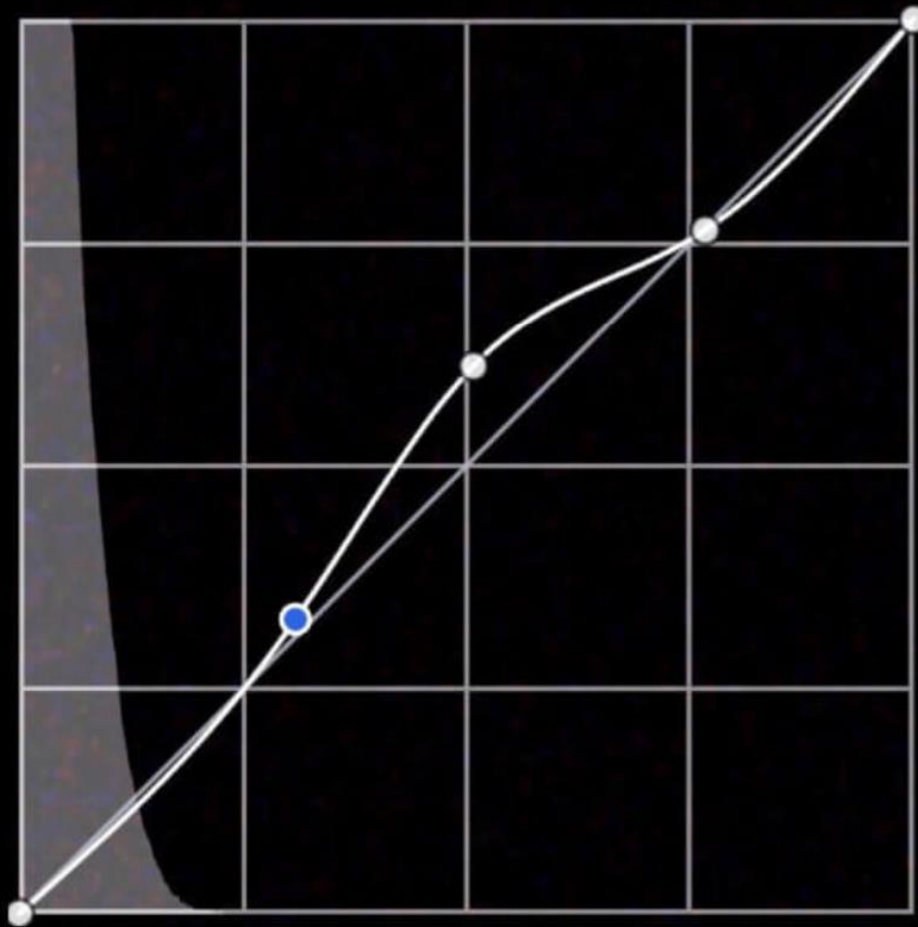


Mid-points

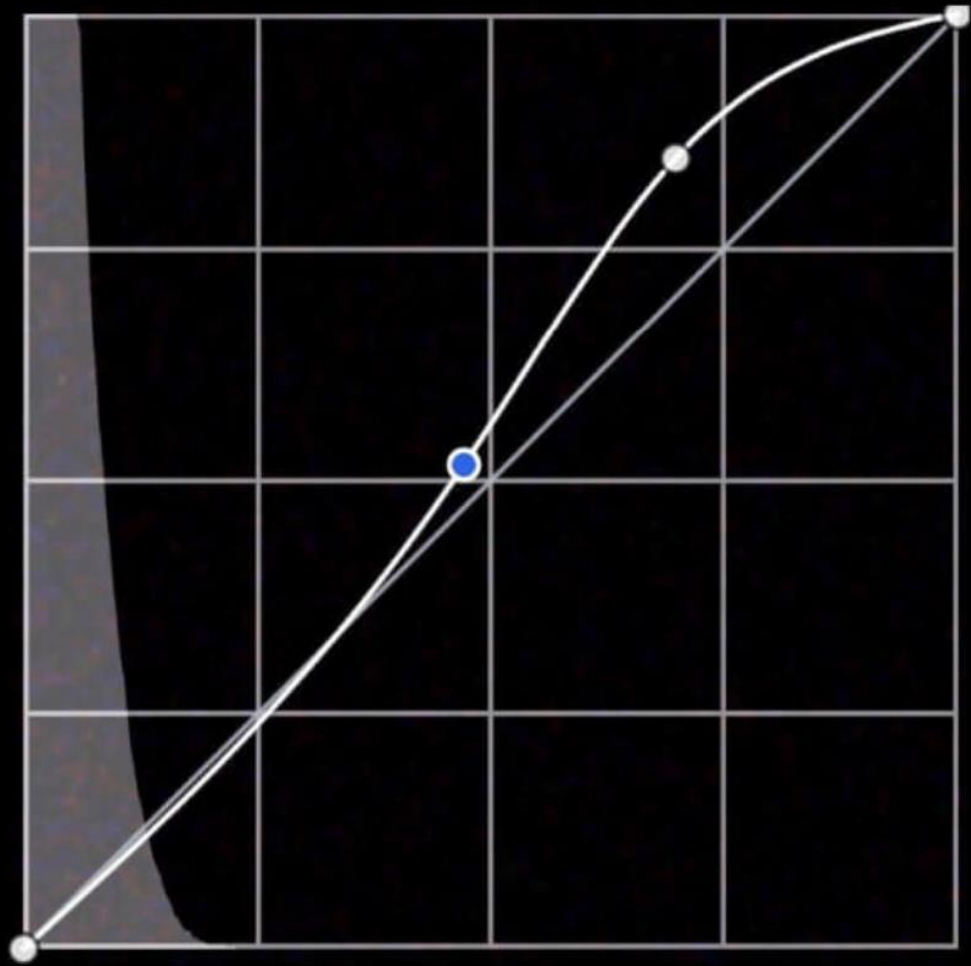


Highlights





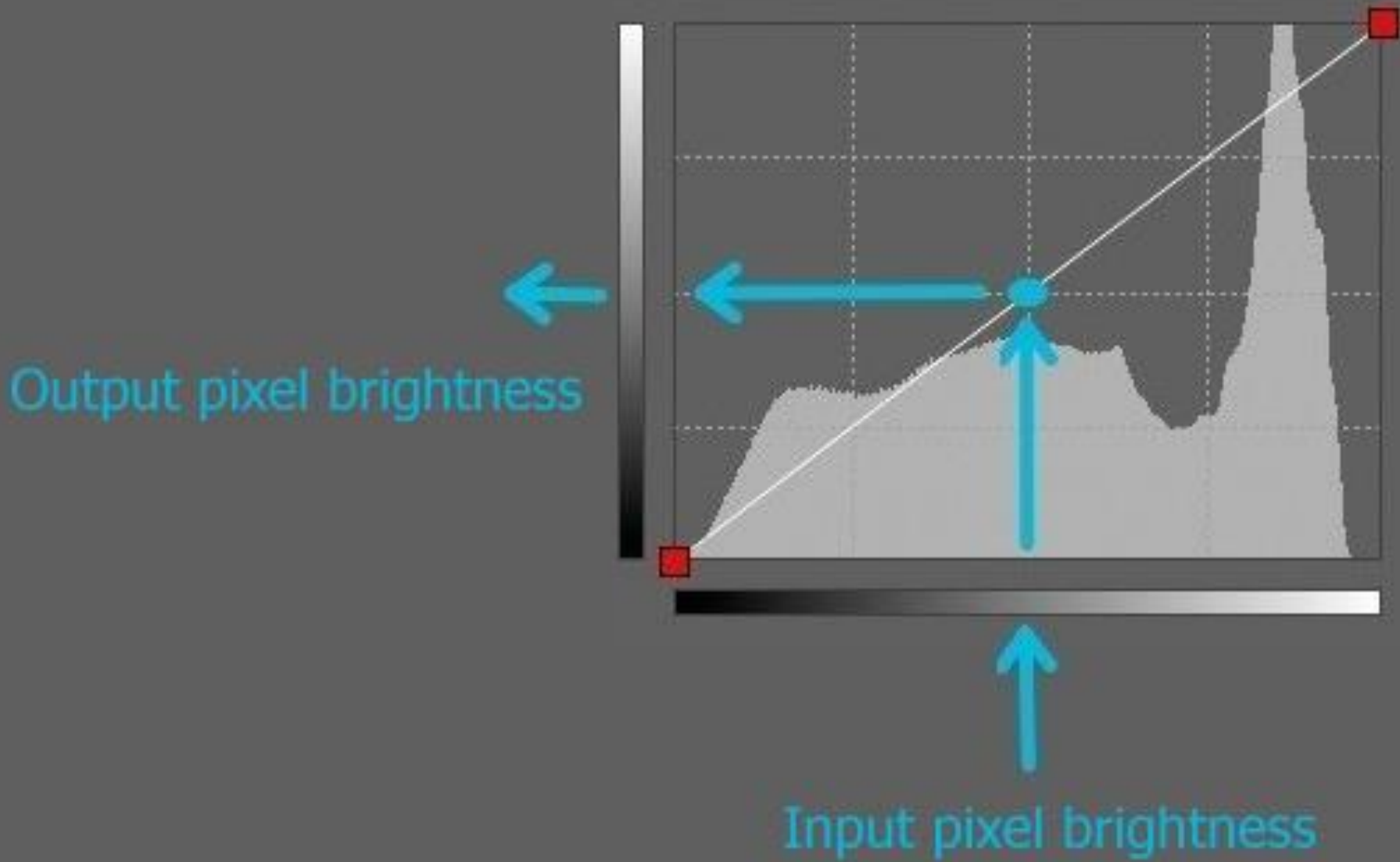
Mid-points



Highlights

CURVES (continued)

- Reference for previous graphics:
<https://smartphonephotographytraining.com/editing-images/snapseed/snapseed-curves-tool/>

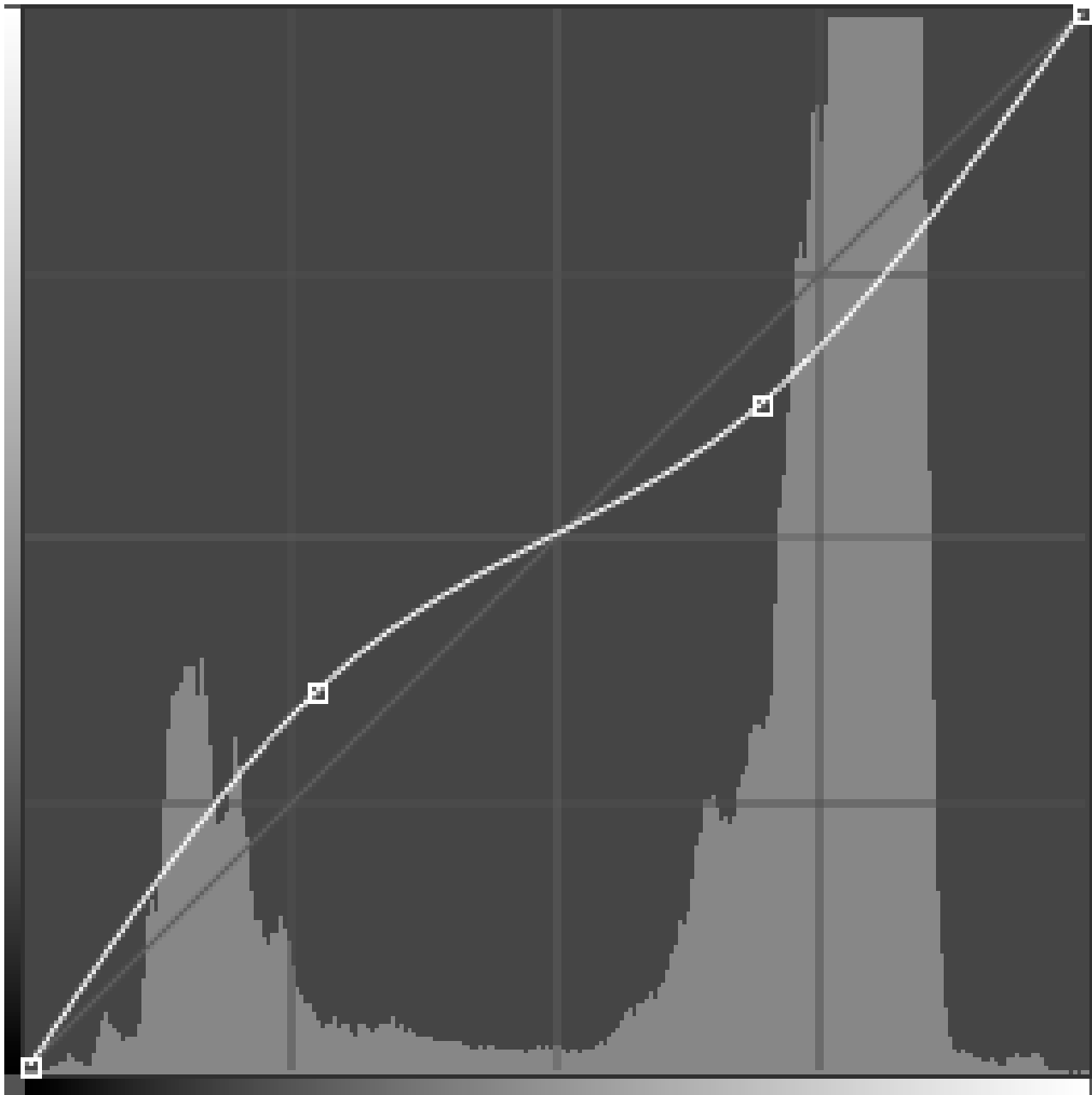


CURVES (continued)

- Reference for previous graphic:
<https://learn.zoner.com/how-to-use-curves-to-adjust-image-exposure/>

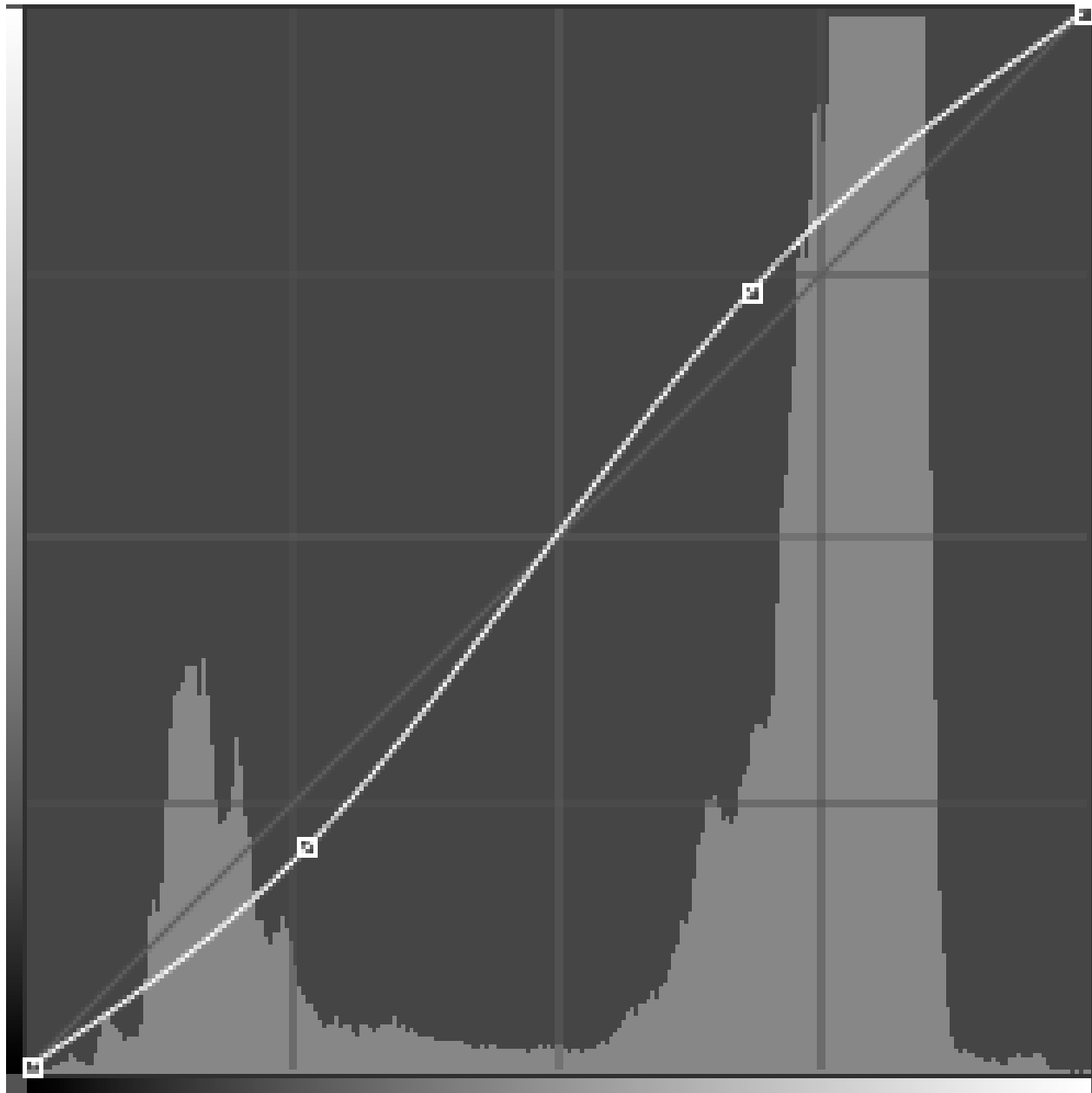
CONTRAST

- Decreasing the contrast means making the dark areas lighter and the light areas darker which means an reverse S-curve for the input-output curve



CONTRAST (continued)

- Increasing the contrast means making the dark areas darker and the light areas lighter which means an S-curve for the input-output curve



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CONTRAST (continued)

- Reference for the previous two graphics:
- <https://edu.gcfglobal.org/en/photoshopbasics/levels-curves-and-color/1/>

BRIGHTNESS AND CONTRAST (continued)

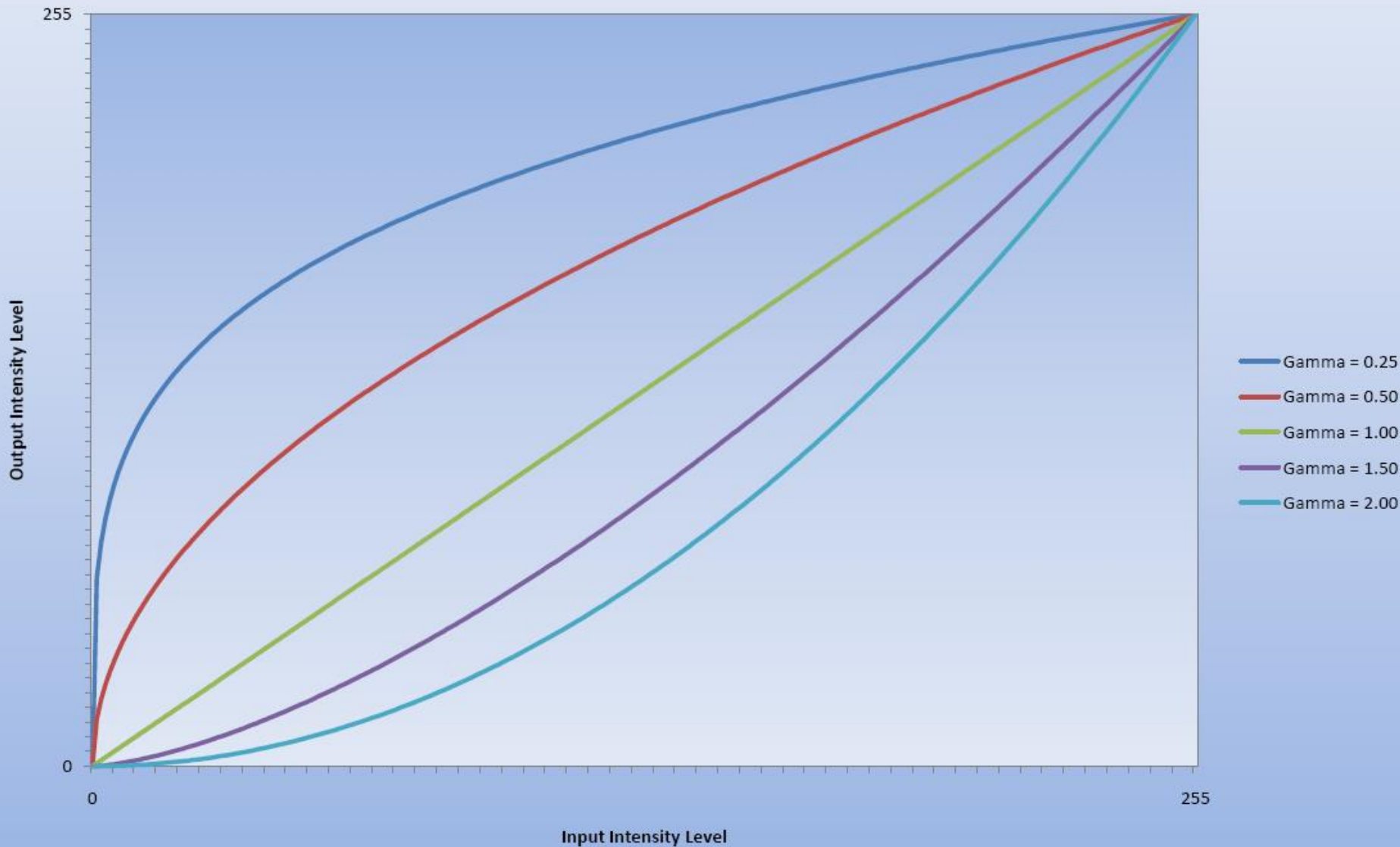
- See

<https://graphicdesign.stackexchange.com/questions/11445/gamma-vs-brightness-any-difference>

WHAT IS "GAMMA"?

- "Gamma" is a factor that describes the amount of bend in the input-output x-y curve of light intensity of a specific photo file:

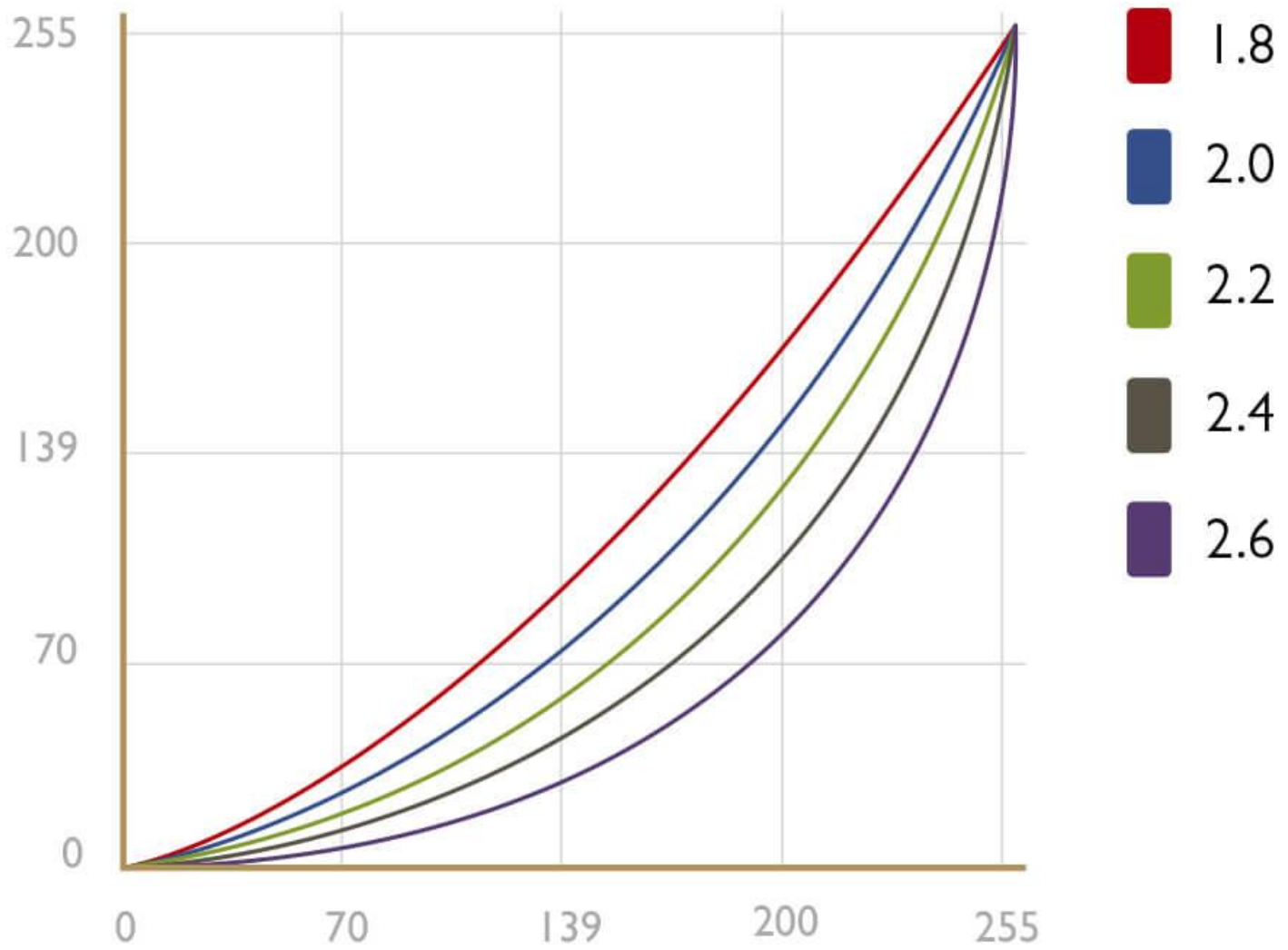
Gamma Curves



WHAT IS "GAMMA"? (continued)

- Reference for the previous image:

<https://www.dfstudios.co.uk/articles/programming/image-programming-algorithms/image-processing-algorithms-part-6-gamma-correction/>



WHAT IS "GAMMA"? (continued)

- Reference for the previous image:

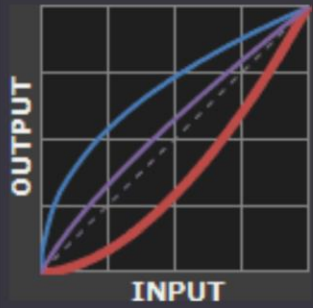
<https://www.benq.com/en-ap/knowledge-center/knowledge/gamma-monitor.html>

WHAT IS "GAMMA"? (continued)

- For more information on gamma adjustments, see <https://www.benq.com/en-ap/knowledge-center/knowledge/gamma-monitor.html>



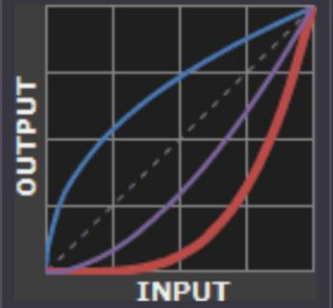
Display Gamma 1.0



Display Gamma 1.8



Display Gamma 2.2



Display Gamma 4.0



WHAT IS "GAMMA"? (continued)

- Reference for the previous image:

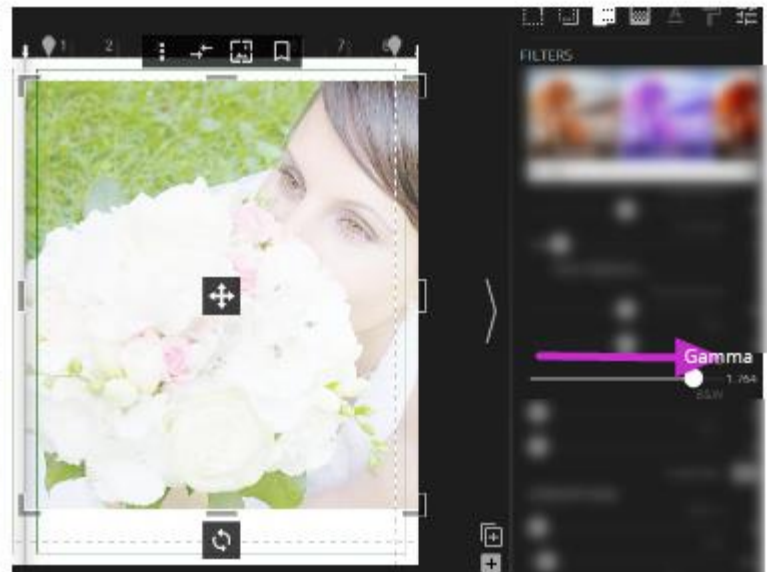
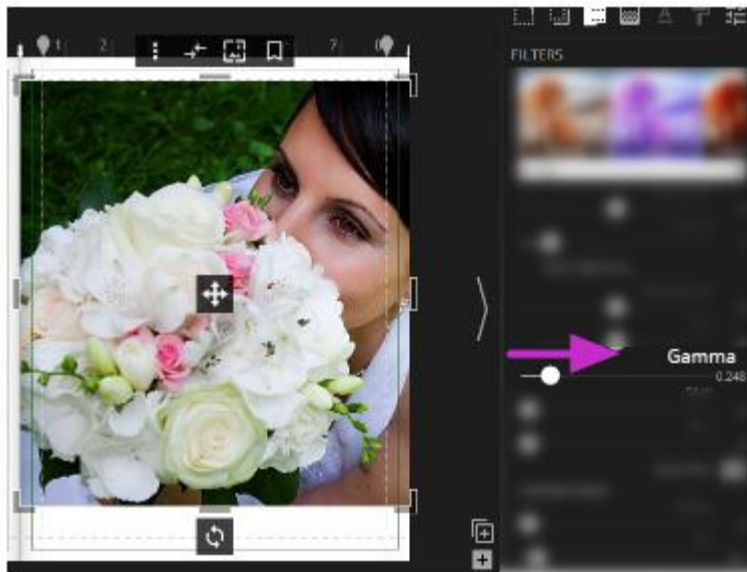
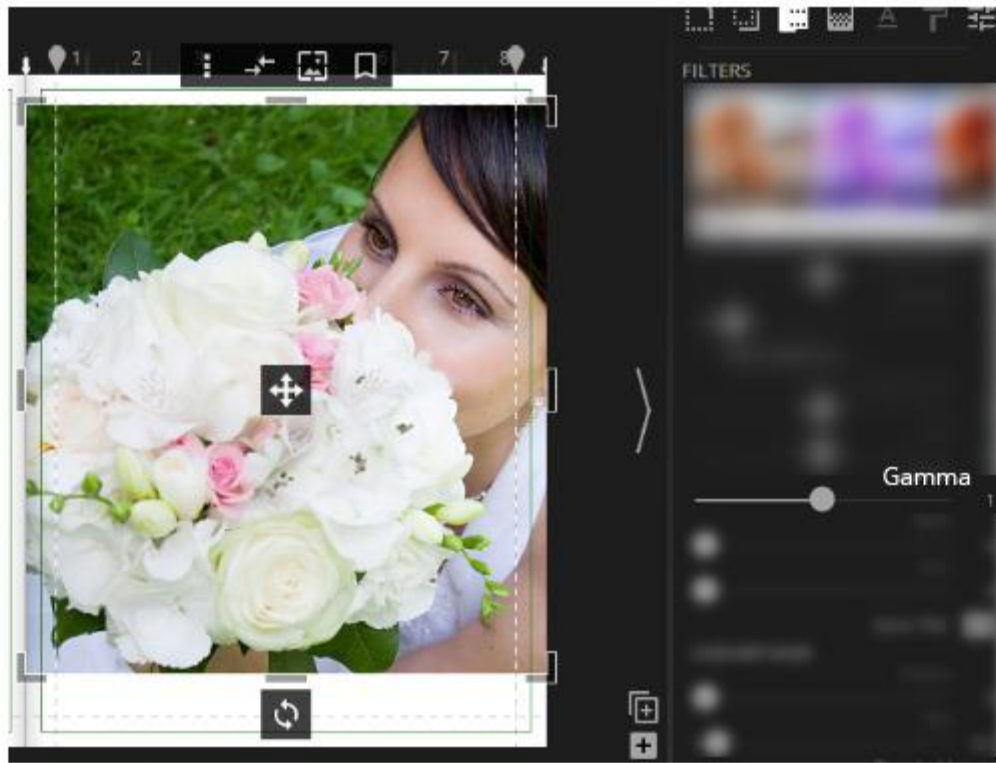
<https://www.cambridgeincolour.com/tutorials/gamma-correction.htm>

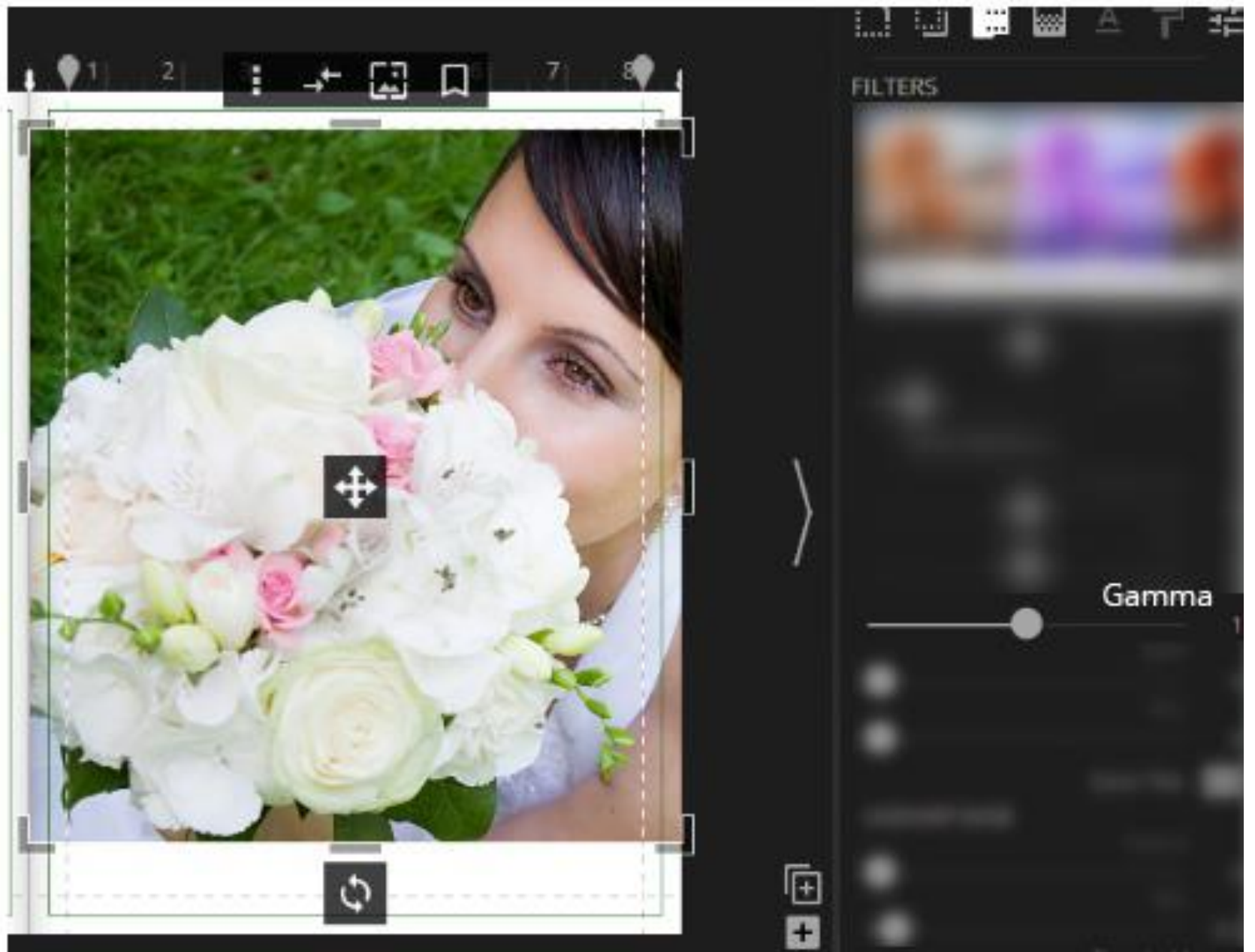
WHAT IS "GAMMA"? (continued)

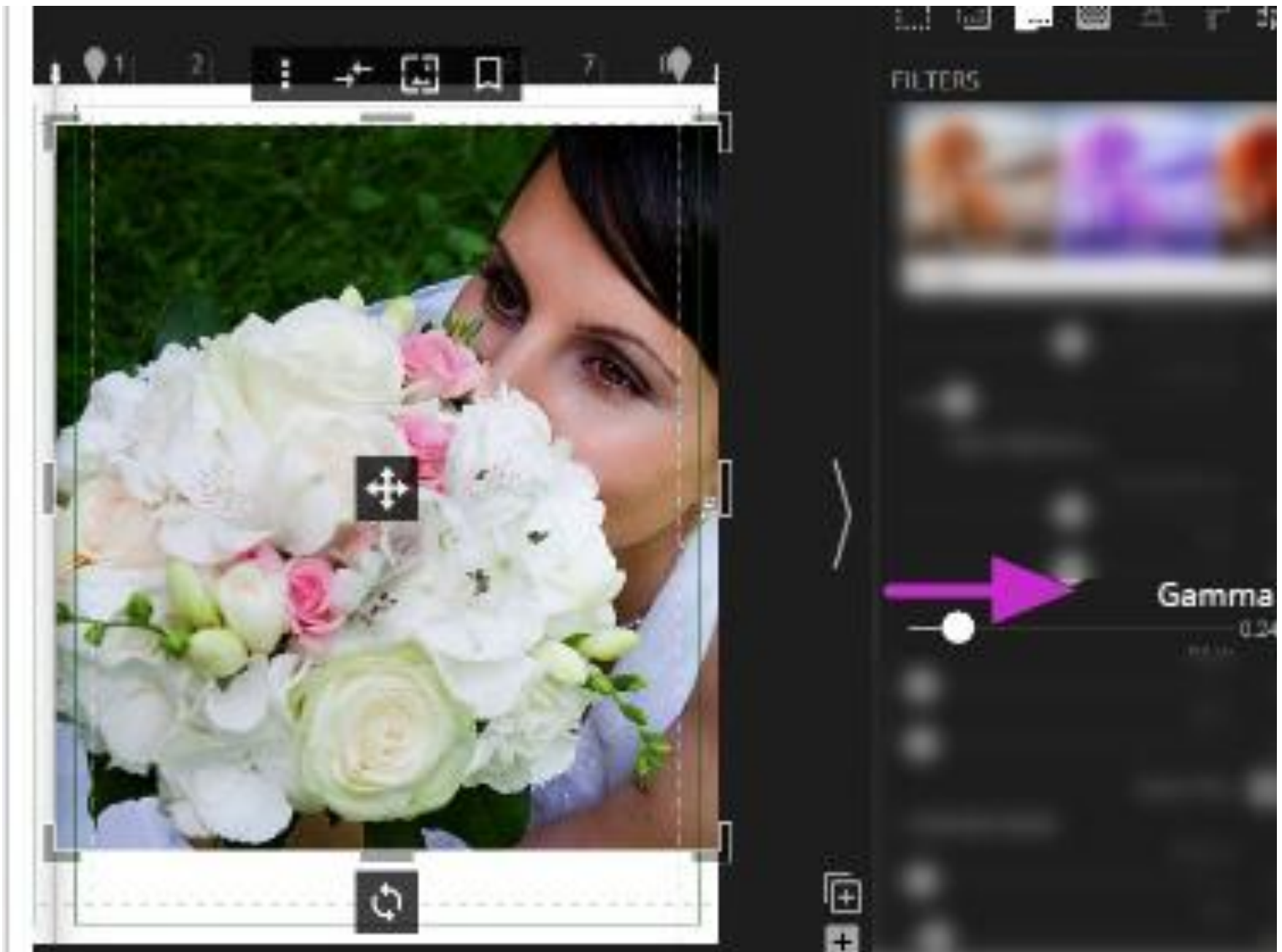
- According to <http://mementopro-support.lumapix.com/support/solutions/articles/12000039366-image-brightness-contrast-color-and-other-properties->:

WHAT IS "GAMMA"? (continued)

- <Start of quote:>
Gamma changes the difference between dark and light areas - akin to adjusting Brightness and Contrast simultaneously.
<End of quote:>







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EVEN MORE COMPLEXITY FOR ALMOST MAGICAL EDITS OF PHOTOS

- <https://edu.gcfglobal.org/en/photoshopbasics/levels-curves-and-color/1/>
- <https://learn.zoner.com/how-to-use-curves-to-adjust-image-exposure/>

EVEN MORE COMPLEXITY FOR ALMOST MAGICAL EDITS OF PHOTOS (continued)

- <https://www.howtogeek.com/276247/what-are-curves-in-photoshop/>
- <https://blog.frame.io/2017/09/20/beginners-guide-to-color-curves/>

EVEN MORE COMPLEXITY FOR ALMOST MAGICAL EDITS OF PHOTOS (continued)

- <https://smartphonephotographytraining.com/editing-images/snapseed/snapseed-curves-tool/>
- <https://learn.zoner.com/how-to-read-a-histogram/?fidl=2019-06-mag-en>