**Content**

[1. What is what 2](#_Toc29654574)

[1. Ton – Hue 2](#_Toc29654575)

[2. Sytost - Saturation 2](#_Toc29654576)

[3. Brightness (JAS, value) 2](#_Toc29654577)

[4. Lightness 2](#_Toc29654578)

[5. Svetelnost 3](#_Toc29654579)

[6. HSV = HSB 3](#_Toc29654580)

[7. HSL 3](#_Toc29654581)

[8. Rozptylovanie (dithering) and poltonovanie (halftoning) 3](#_Toc29654582)

[9. Rand 3](#_Toc29654583)

[2. Farebne modely 5](#_Toc29654584)

[3. Algos 6](#_Toc29654585)

1. Nabyflit

Gamma faktor - je odchýlka hodnoty pixelu od skutočného jasu pixelu na monitore.

Gamma korekcia - je operácia s jasom slúžiaca na odstránenie nelinearít zobrazovacieho systému

obrazoviek.

Prevod RGB do odtienov šedej

I = 0.299\*R + 0.587\*G + 0.114\*B

I je výsledná intenzita (úroveň šedej)

Kresliť úsečku v počítačovej grafike môžeme viacerými algoritmami:

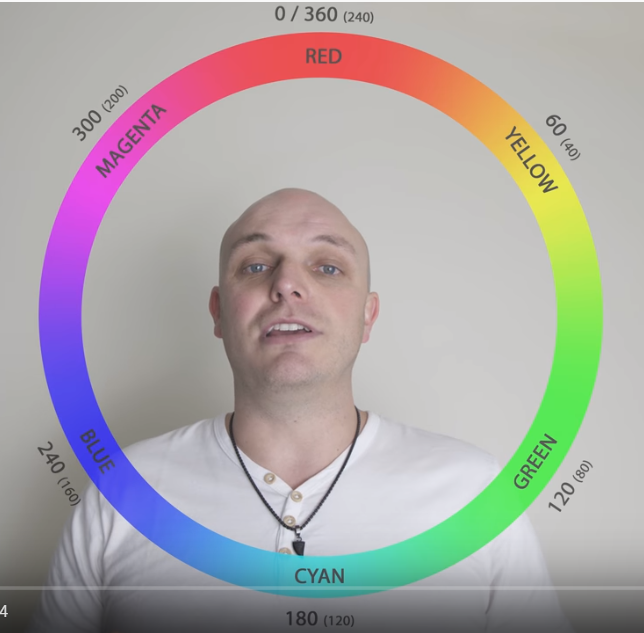
• Algoritmus založený na výpočte oboch súradníc

• Algoritmus DDA Algoritmus DDA

• Bresenhamov algoritmus pre kreslenie úsečky

Antialiasing (vyhladzovanie) je metóda používaná k odstráneniu alebo zmerneniu nežiadúceho skreslenia

kresby na rastrových zariadeniach

1. What is what
   1. Ton – Hue

Tón (angl. hue) charakterizuje farbu prostredníctvom vlnovej dĺžky.

Hue: represents a pure color of something, usually measures in degrees. Follows the physiscs, as color changes based on the fequency of the light. (red – lowest hz) – Rainbow, red always on top. RGB and CMY follows hue. Color contrast.

* 1. Sytost - Saturation

Sýtosť (angl. saturation) vyjadruje intenzitu farby pomocou zloženia monochromatického a bieleho svetla. Sýtosť farby je tým väčšia, čím menší je rozsah vlnových dĺžok a menšie množstvo zložiek bieleho svetla.

Saturation – Saturation defines the brilliance and intensity of a color. When a pigment hue is “toned,” both white and black (grey) are added to the color to reduce the color’s saturation. In terms of the “additive” light color model, though, saturation works on a scale based on how much or how little other hues are represented in the color.

* 1. Brightness (JAS, value)

Svetlosť (angl. brightness) farby závisí od relatívnej veľkosti podráždenia sietnice, a teda aj od citlivosti oka na jednotlivé farby, ktoré je najcitlivejšie na strednú časť spektra. Preto sa rovnako sýte farby blízke tejto zložke javia ako svetlejšie voči protikladným zložkám modrofialovým. Parametrom svetlosti je aj množstvo energie vyžiarenej jednotkovou farebnou plochou.

Brightness – Attribute of a visual sensation according to which an area appears to emit more or less light.

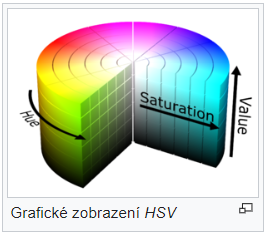
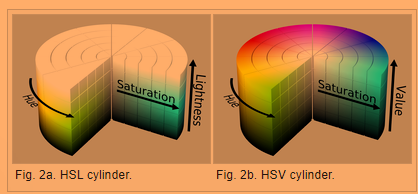
* 1. Lightness

Value: value refers to the lightness or darkness of a color. It indicates the quantity of light reflected.

Lightness – the brightness of an area judged relative to the brightness of a similarly illuminated area that appears to be white or highly transmitting

* 1. Svetelnost

Svetelnosť je bezrozmerná veličina vo fotografii, ktorá vyjadruje najvyššie možné množstvo svetla, ktoré prepustí daná optická sústava.

* 1. HSV = HSB
* HSV – Hue Staturation Value: HSV (Hue, Saturation, Value), také známý jako HSB (Hue, Saturation, Brightness), je barevný model, který vytvořil v roce 1978 Alvy Ray Smith. Tento barevný model nejvíce odpovídá lidskému vnímání barev. Skládá se ze tří složek (nejsou to základní barvy), u nichž je nutno hlídat hodnoty (možné nesmyslné kombinace):
  1. Difference between HSB and HSL
* All these are used as a friendly way to represent RGB colors.
* Hue is the same for HSB and HSL but the Saturation takes different values and Brightness and Lightness are also different.
* 
  1. Difference between additive and subtractive color models

A subtractive color model works exactly opposite from an additive color model (RGB,) it works by partially or entirely masking certain colors from white.

So instead of adding light to achieve a color, CMYK is using ink to subtract brightness from white. Therefore, Cyan, Magenta, and yellow combined is black – the absence of brightness.

As Red, Green, and Blue all come to white – it is understood that white is truly the combination of all colors and black is the absence of color.

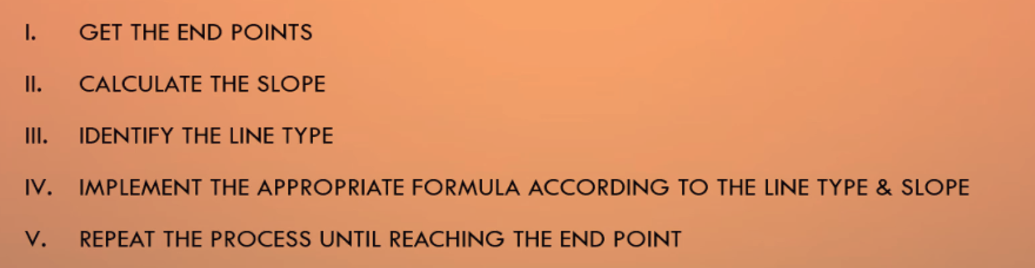
* 1. Rozptylovanie (dithering) and poltonovanie (halftoning)

Dithering: positioning pixels close to each other in such a way, that from further distance it will look like a different color.

Halftone is a reprographic technique used to simulate continuous tones and shades with the use of dots. This process allows colorful images to be printed with one color of ink. This creates the optical illusion of smooth tones and shades to the human eye.

* 1. Rand
* Achromatic color: achromatic is an adjective that means „free of color“. In printing synonym for „black and white“. A black and white print has shades of grey, but greyscale is also considered to be achromatic, because it lacks hue.
* Monochromatic color: Monochromatic colors are all the colors (tones, tints and shades) of a single hue.
* Tints and Shades: (Ton, odtien, arnyalat) In color theory, a tint is a mixture of a color with white, which reduces darkness, while a shade is a mixture with black, which increases darkness. Both processes affect the resulting color mixture's relative lightness. A tone is produced either by mixing a color with grey, or by both tinting and shading.[1] Mixing a color with any neutral color (including black, gray, and white) reduces the chroma, or colorfulness, while the hue (the relative mixture of red, yellow, green, etc. depending on the colorspace) remains unchanged.
* Lightness: In colorimetry and color theory, lightness, also known as value or tone, is a representation of variation in the perception of a color or color space's brightness. It is one of the color appearance parameters of any color appearance model.
* Gamma correction: Gamma correction, or often simply gamma, is a nonlinear operation used to encode and decode luminance or tristimulus values in video or still image systems

1. transformácie
2. Algos
   1. DDA – Digital Differential Analyzer



* 1. Bersenham’s line drawing algo
  2. Cohen-Sutherland algorithm
  3. algoritmus riadkového rozkladu
  4. maliarov algoritmus riešenia viditeľnosti.
  5. Freeman-Lotrelov algoritmus riešenia viditeľnosti.
  6. algoritmus pamäte hĺbky (Z-buffer)