

Implementação de extratores de características para imagens de úlcera venosa

Aluno: Wellington de Souza Silva

Coordenador: Prof. Marcos Vinícius Naves Bêdo

Colaborador: Prof. Rodrigo Erthal Wilson

V Semana de Desenvolvimento Acadêmico 2017 – PROAES - UFF

Úlceras em membros inferiores



Introdução

A

B



Qual é a região mais azul?
O céu ou a nuvem?

Introdução

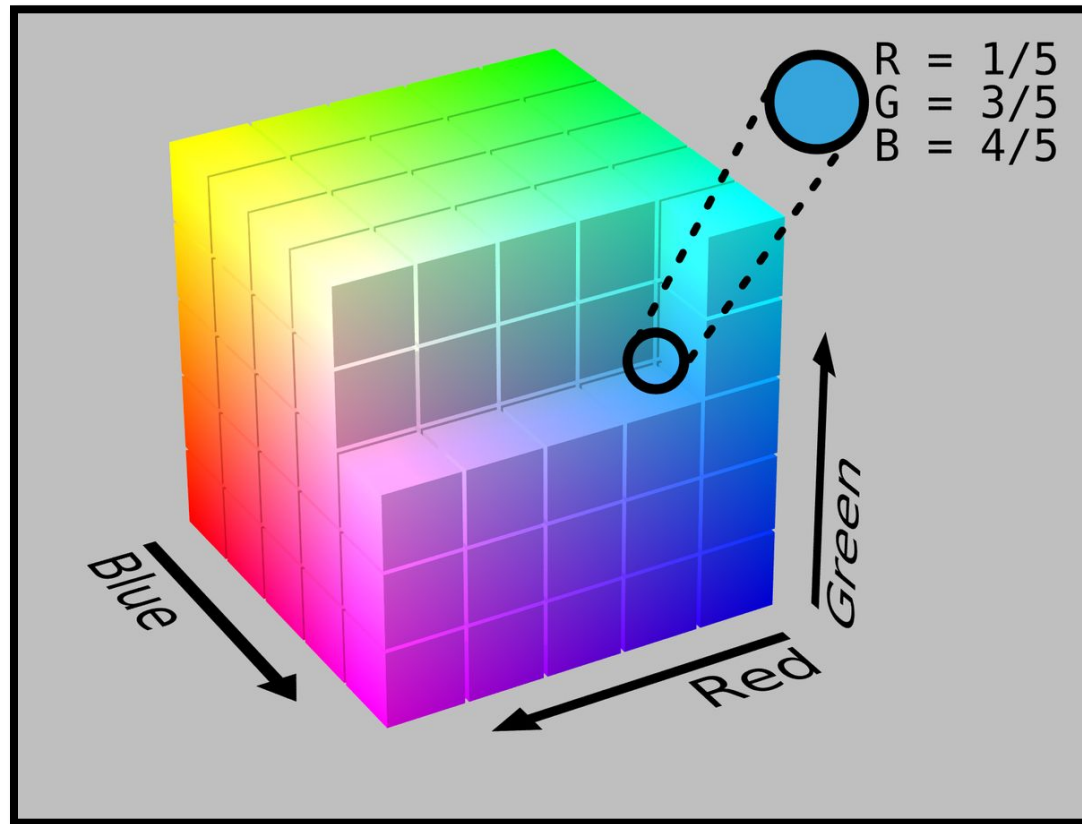
A

RGB(135,206,235)

B

RGB(255,255,255)

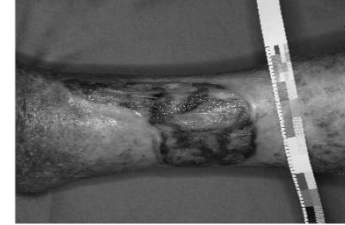
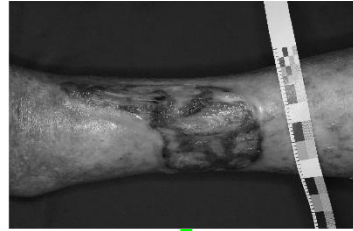
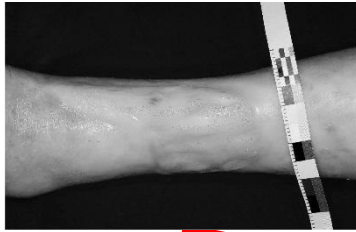
Introdução



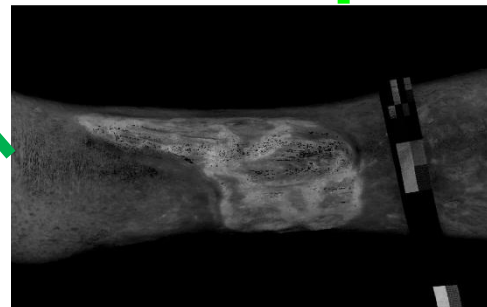
$R' = 0.2$
 $G' = 0.6$
 $B' = 0.8$

$R = 51$
 $G = 153$
 $B = 204$

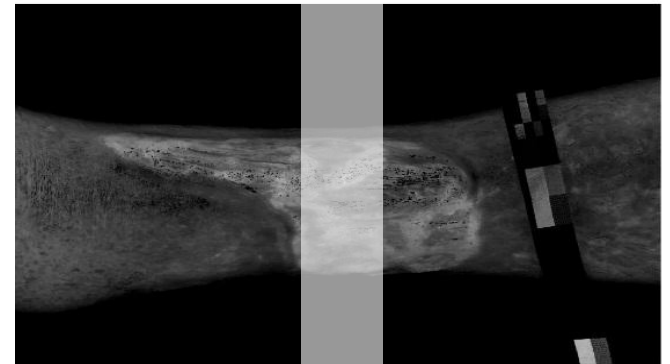
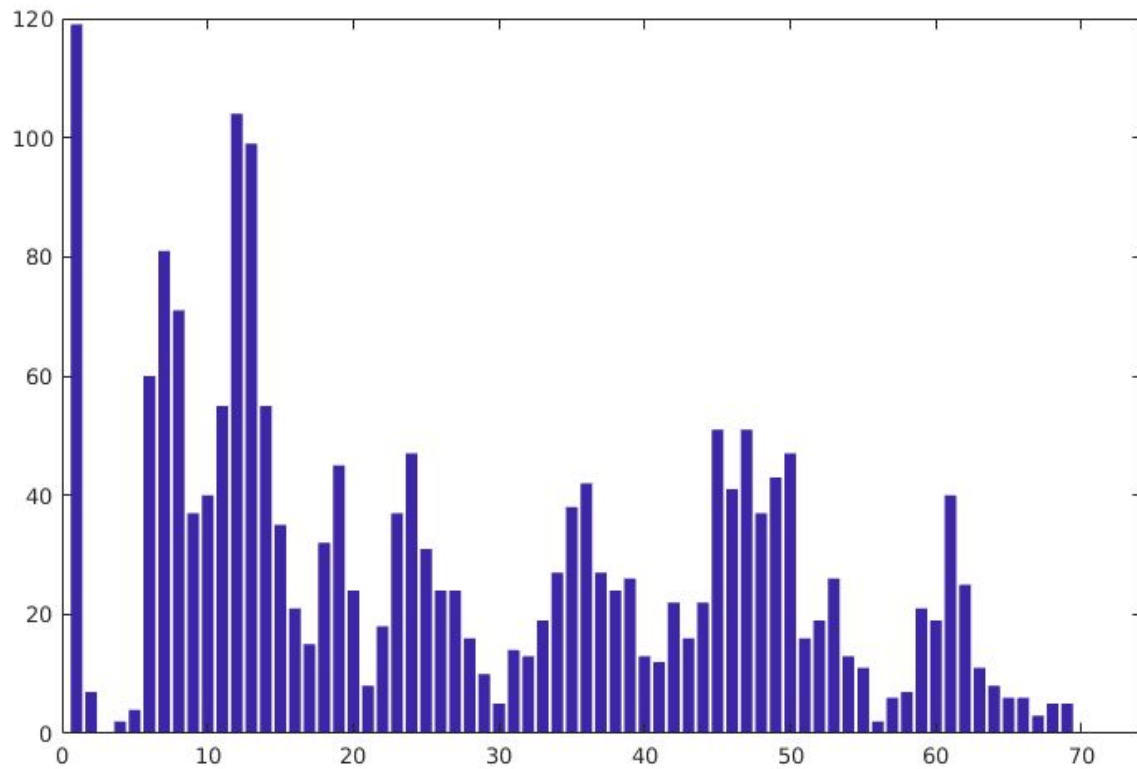
Espaço de cores



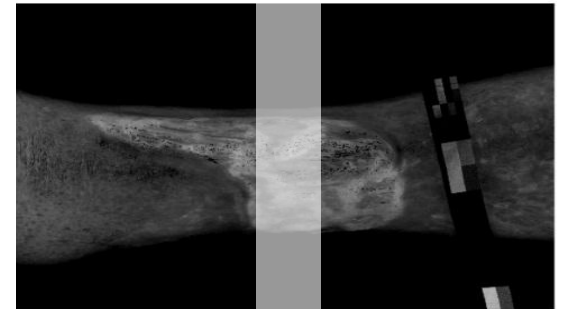
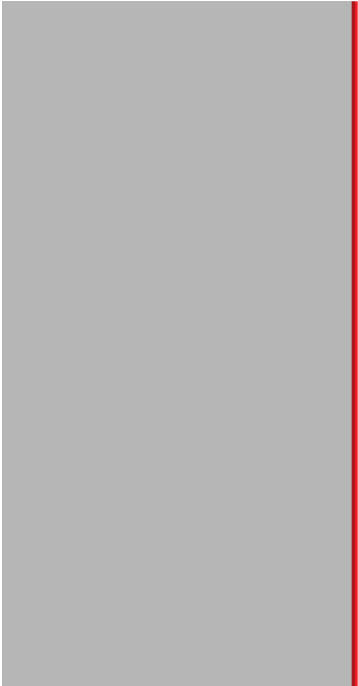
Red – (Blue + Green) / 2



Histograma



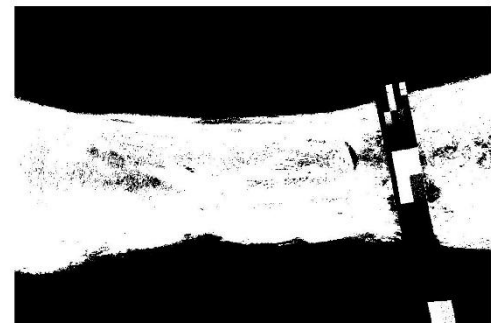
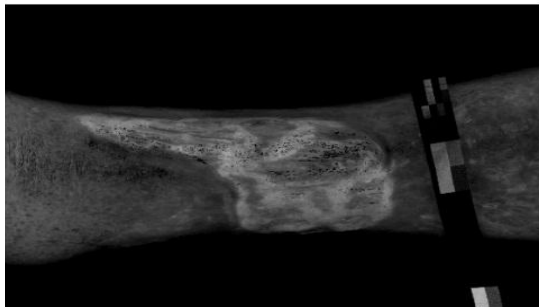
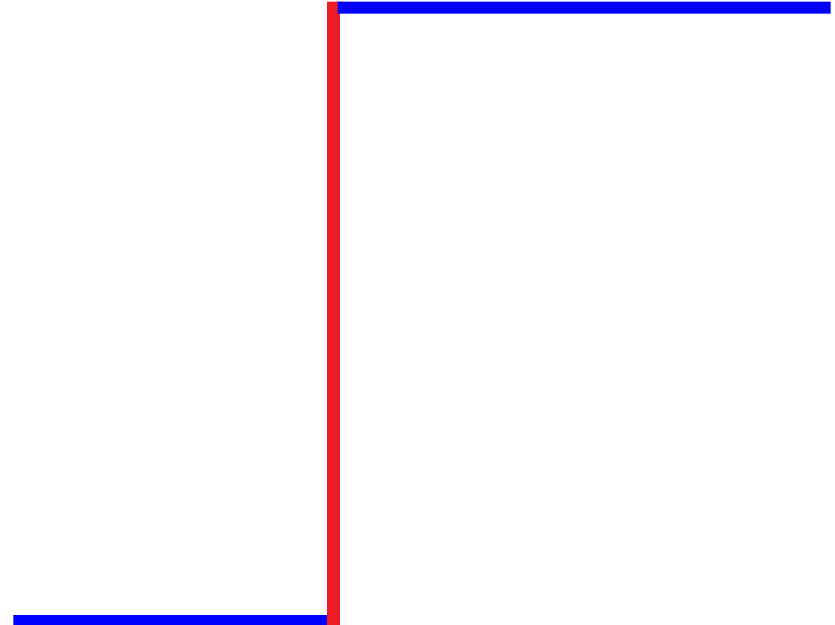
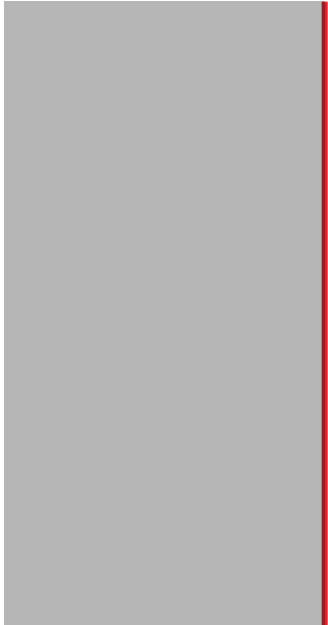
Otsu e Histograma



Within Class Variance $\sigma_W^2 = W_b \sigma_b^2 + W_f \sigma_f^2$ (as seen above)

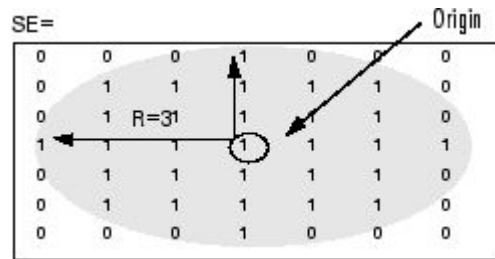
Between Class Variance $\sigma_B^2 = \sigma^2 - \sigma_W^2$
 $= W_b(\mu_b - \mu)^2 + W_f(\mu_f - \mu)^2$ (where $\mu = W_b \mu_b + W_f \mu_f$)
 $= W_b W_f (\mu_b - \mu_f)^2$

Otsu e Histograma

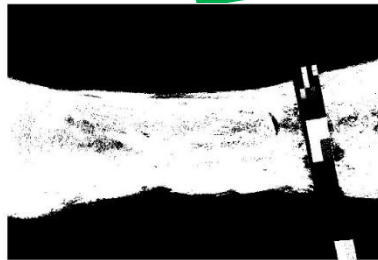


Morfologia matemática

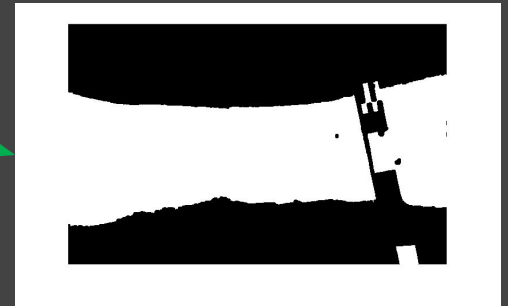
Elemento Estruturante



Erosão



Dilatação



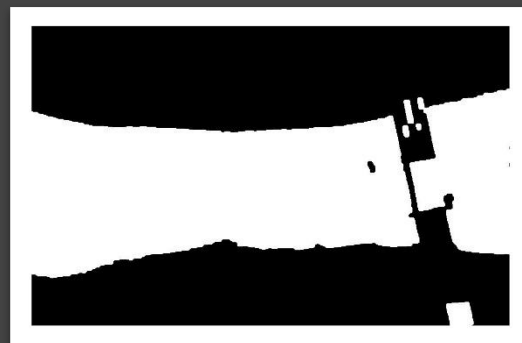
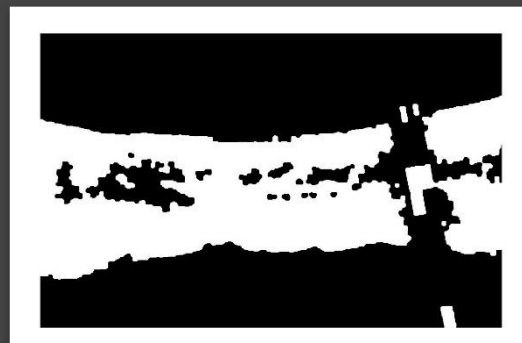
Morfologia matemática

Fechamento

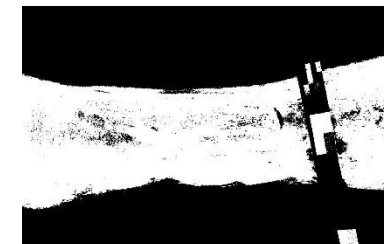
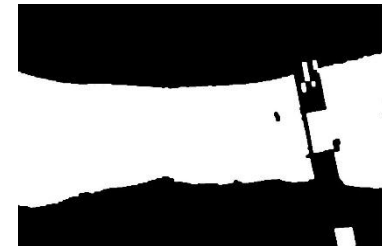
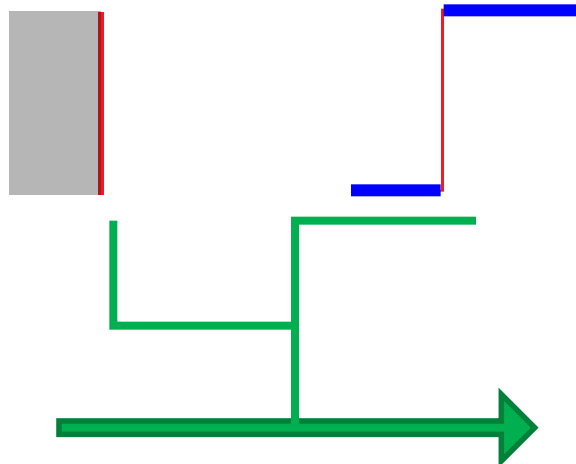
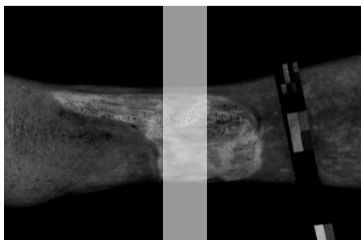
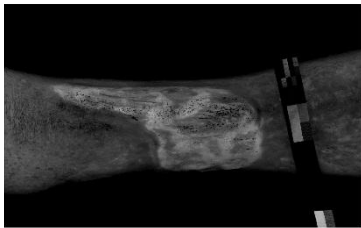
$$A \bullet B = (A \oplus B) \ominus B$$

Abertura

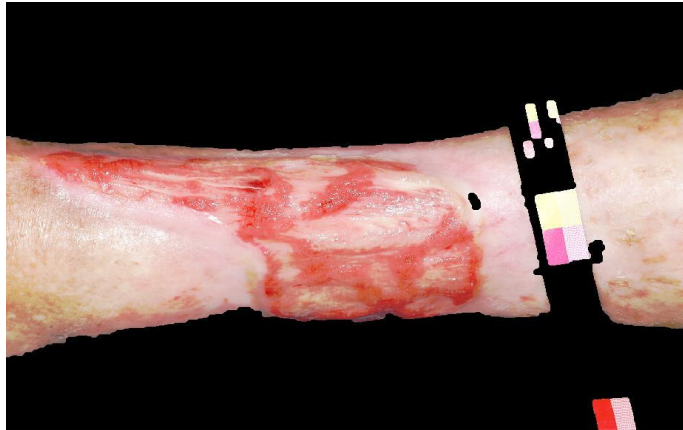
$$A \circ B = (A \ominus B) \oplus B$$



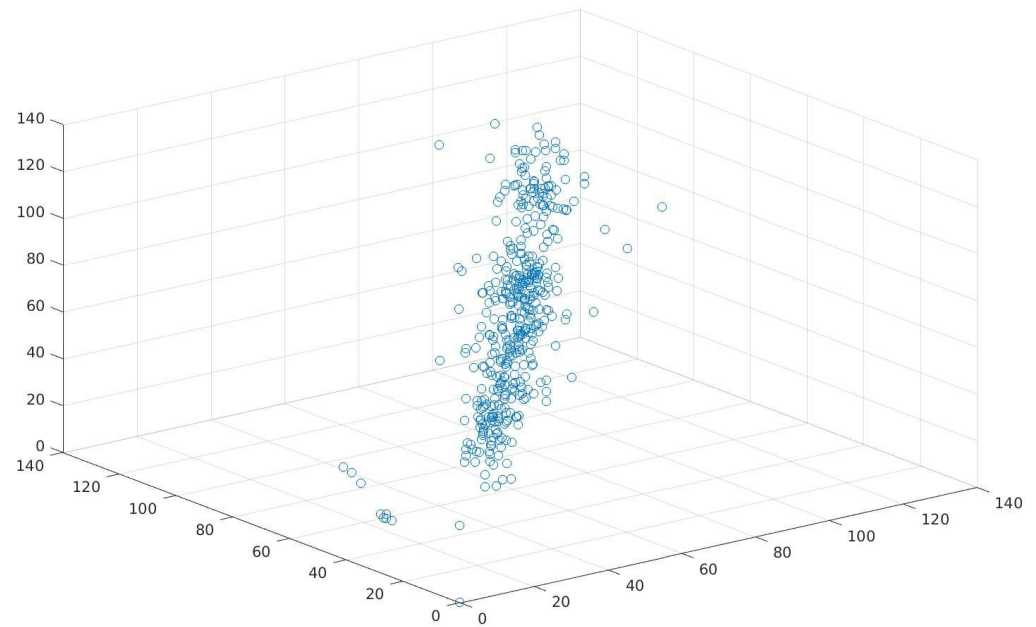
Segmentação



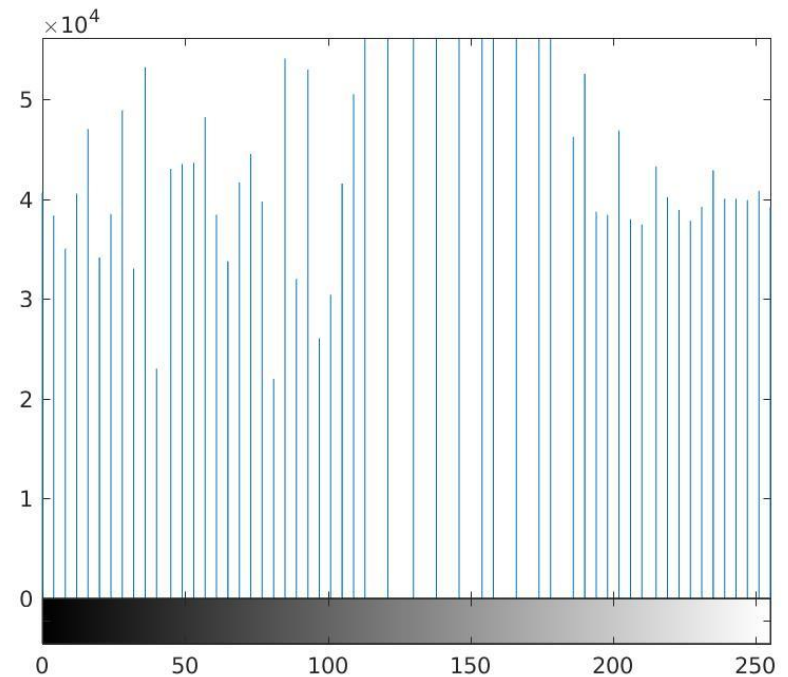
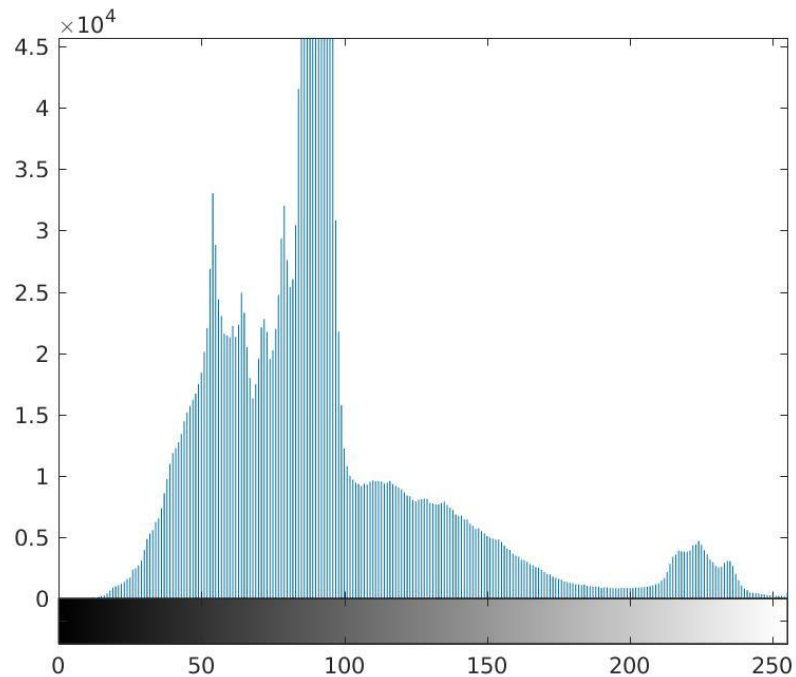
Resultados



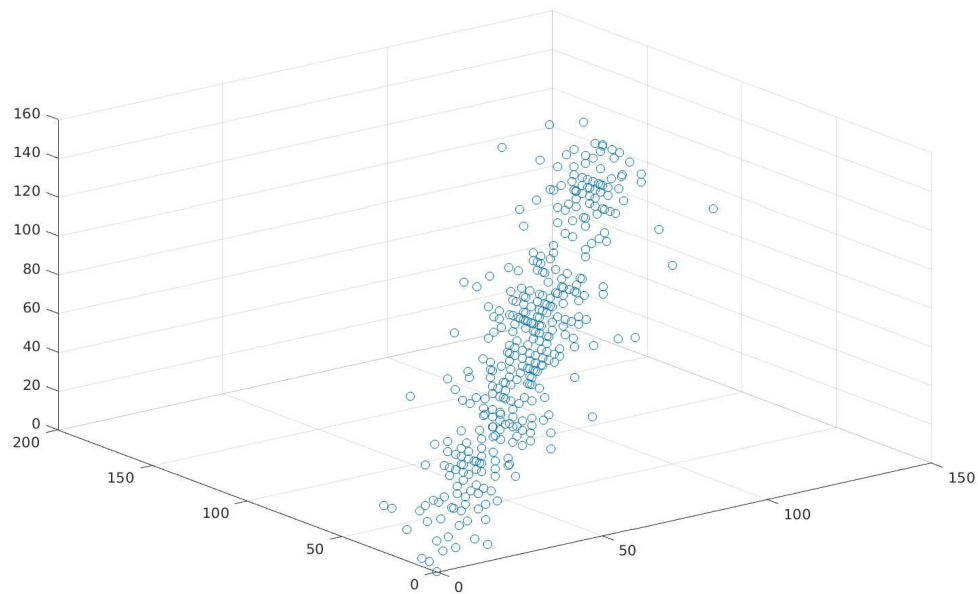
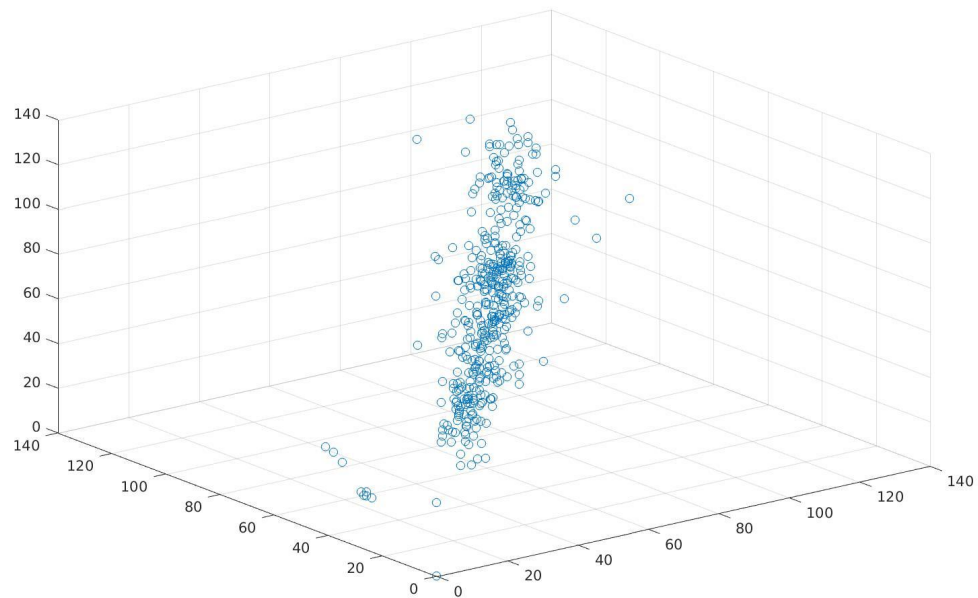
Scatter plot



Equalização



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Obrigado pela atenção.

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