

---

---

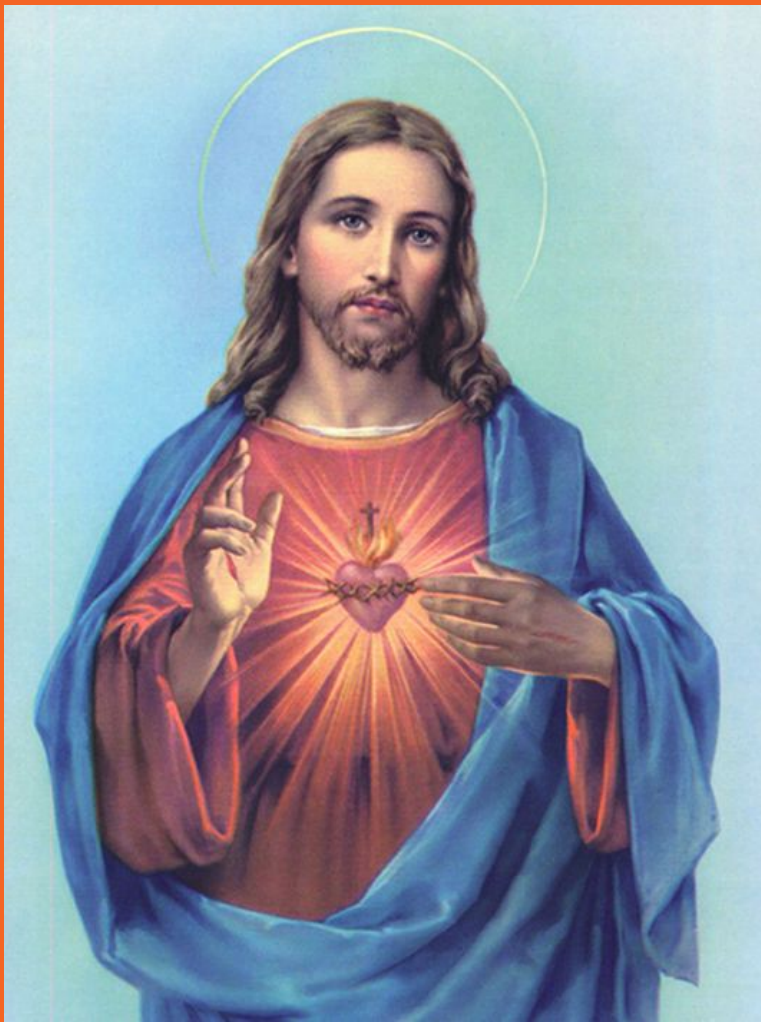
# Halftone QR Codes

---

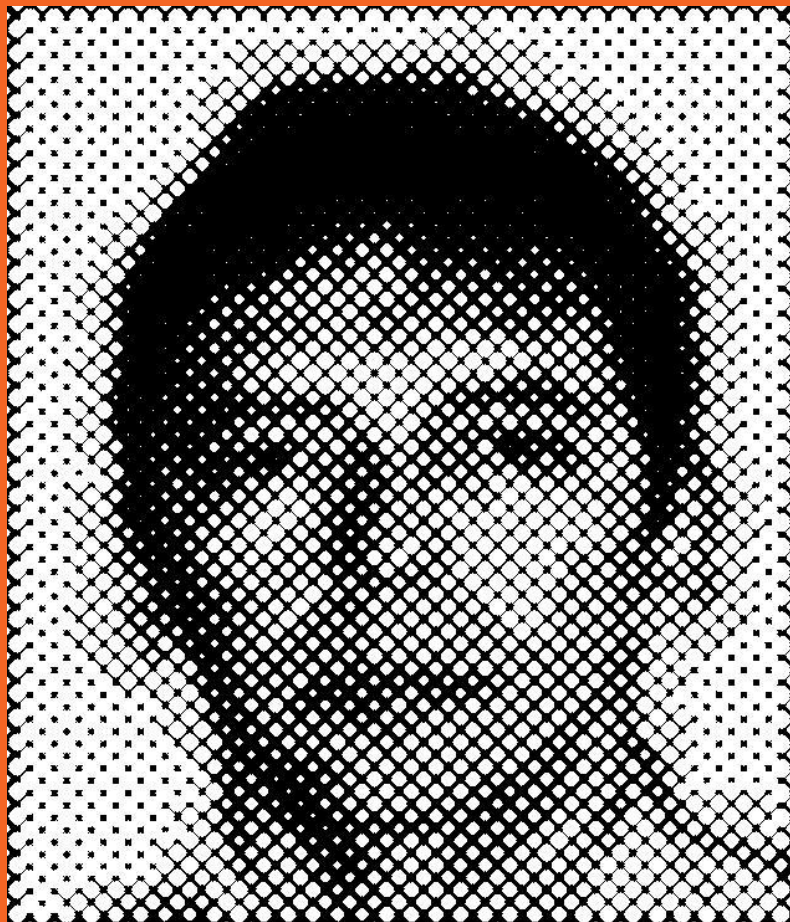
# O que é Halftone?

Meio-tom é um método de impressão que simula os tons contínuos de uma imagem, imprimindo pontos de tinta de uma ou mais cores, variando o tamanho e/ou densidade dos pontos. (Wikipédia)









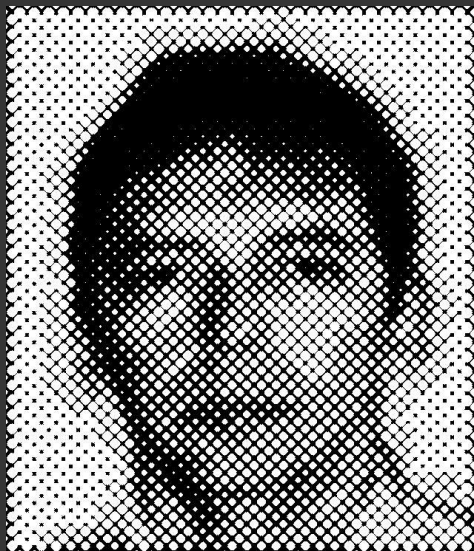
# QR Code?

*Quick Response code* é um é um código de barras bidimensional que é convertido em texto (interativo), esse podendo representar um endereço [URI](#), um número de telefone, etc. (Wikipédia)

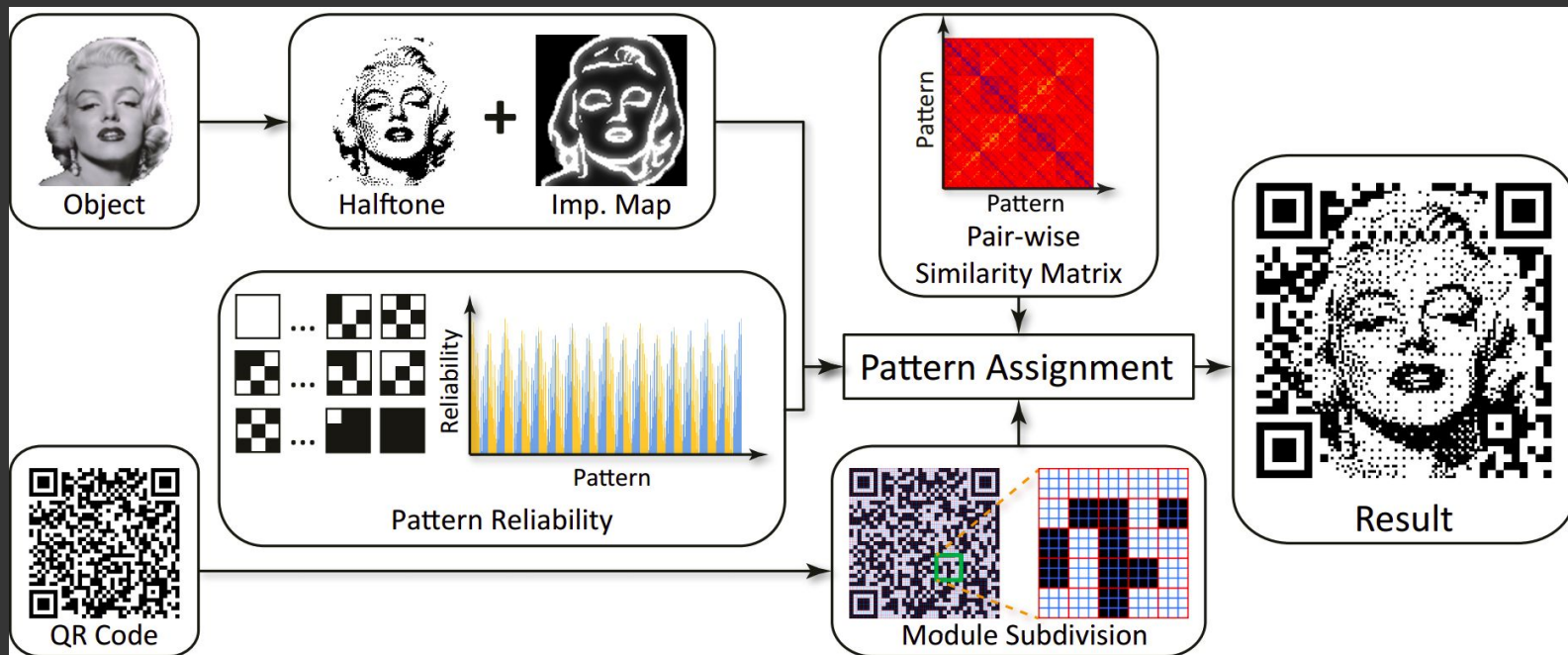




# Halftone QR codes

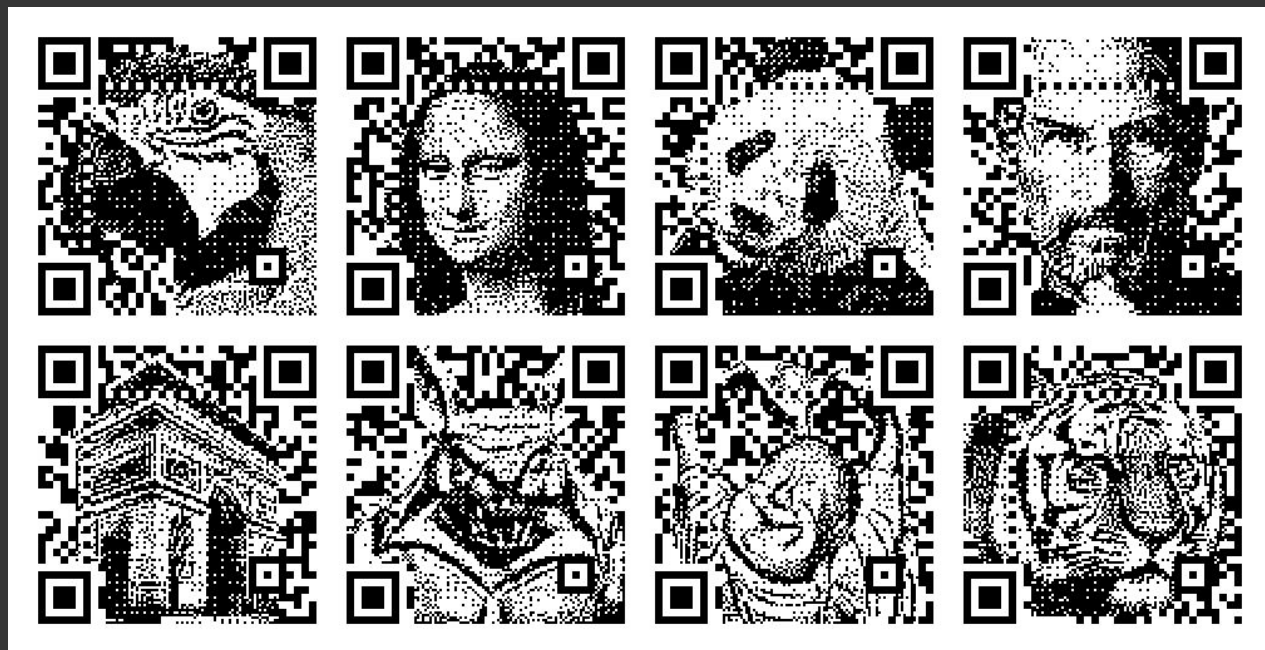


# Halftone QR codes

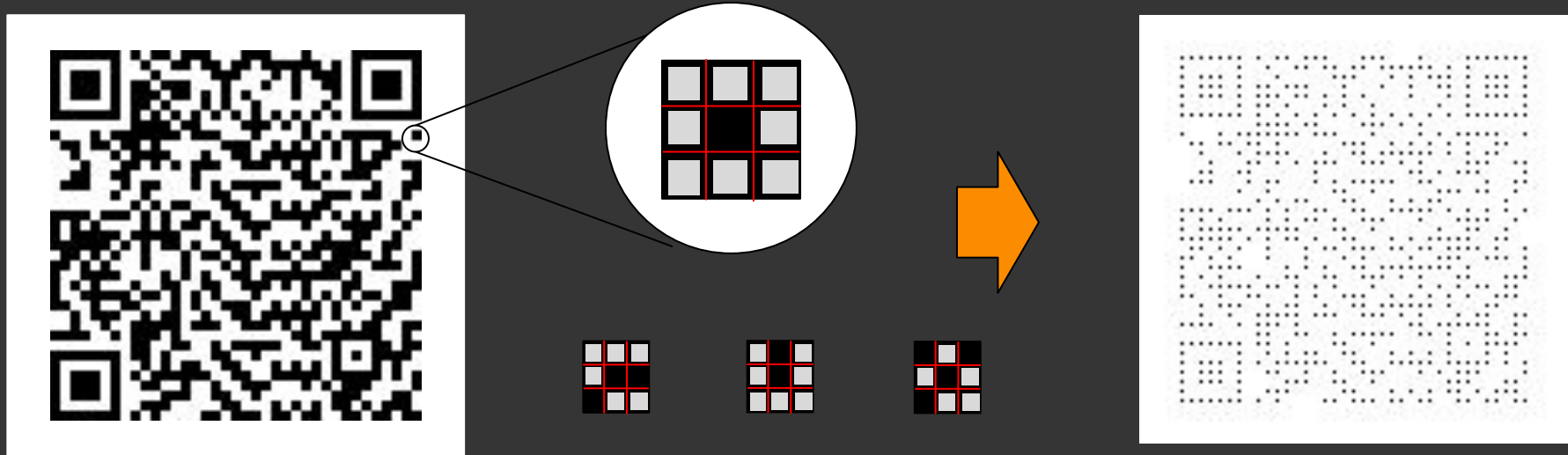




# Halftone QR codes



# Halftone QR codes (our code)



# Halftone QR codes

Calcula intensidade de cada box baseado na imagem redimensionada

Procura o padrão de subloco a menor diferença comparando com a imagem de maior resolução (3x)

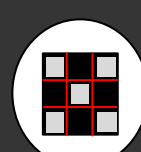
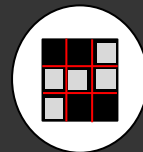
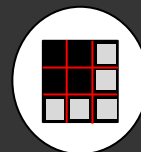
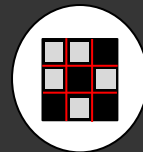
Povoa com os sub-blocos já colocando o dado do QR Code no subloco central

# Halftone QR codes (our code)



# Halftone QR codes (our code)

tom = 5





# Halftone QR codes

resultado halftoning



+



=

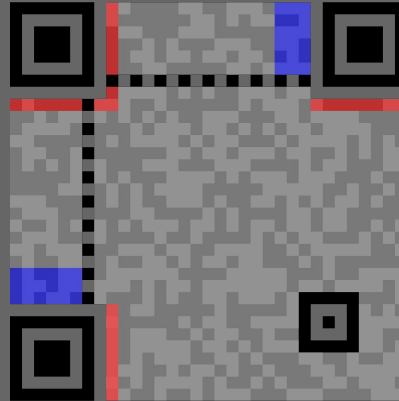


# Halftone QR codes

resultado halftoning



Ainda é necessário aplicar uma máscara para preservar boxes importantes



- 1. Version Information
- 2. Format Information
- 3. Data and Error Correction Keys
- 4. Required Patterns:
  - 4.1. Position
  - 4.2. Alignment
  - 4.3. Timing

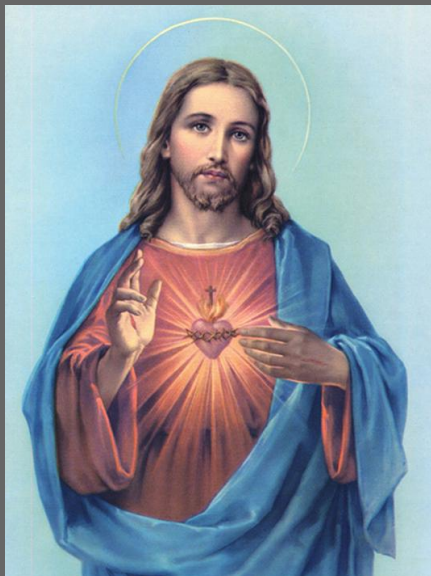
# Halftone QR codes

resultado halftoning



# Outros Exemplos

Halftone QR Code



**Muito obrigado!**

