

PGA — Krita Plugins: Cvičení 3

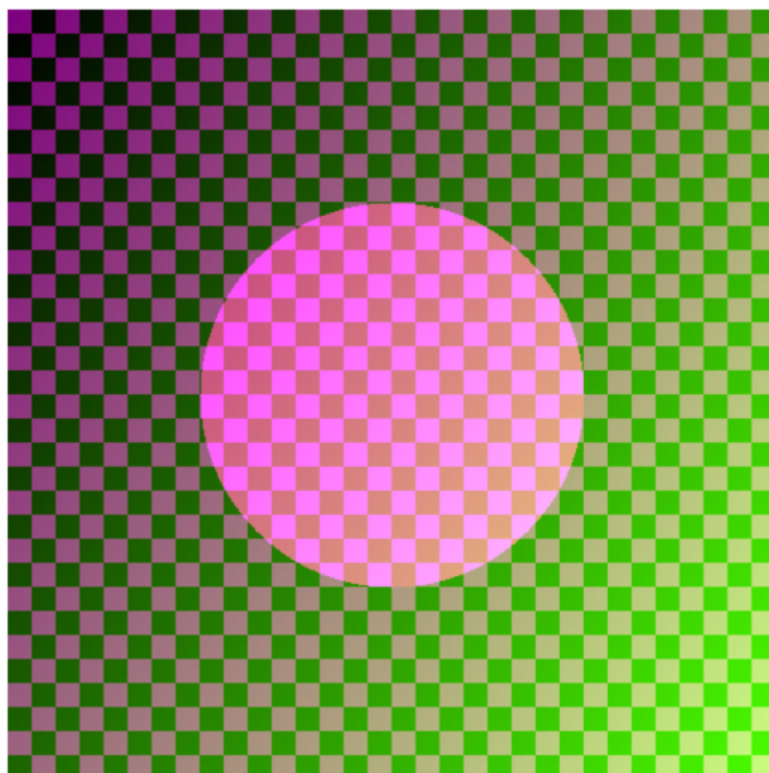
Konvoluce II — separabilní Gauss a Sobel + benchmark

Cíle

- Urychlit blur pomocí separabilního Gaussova jádra (1D $X \rightarrow Y$)
- Implementovat Sobel (G_x , G_y , Magnitude, Orientation)
- Nastavit rychlé preview (ROI $\rightarrow$ downsample) a ukázat okrajové režimy
- Změřit časy (syntetický benchmark)

Ukázka: originál / Gauss / Sobel magnitude

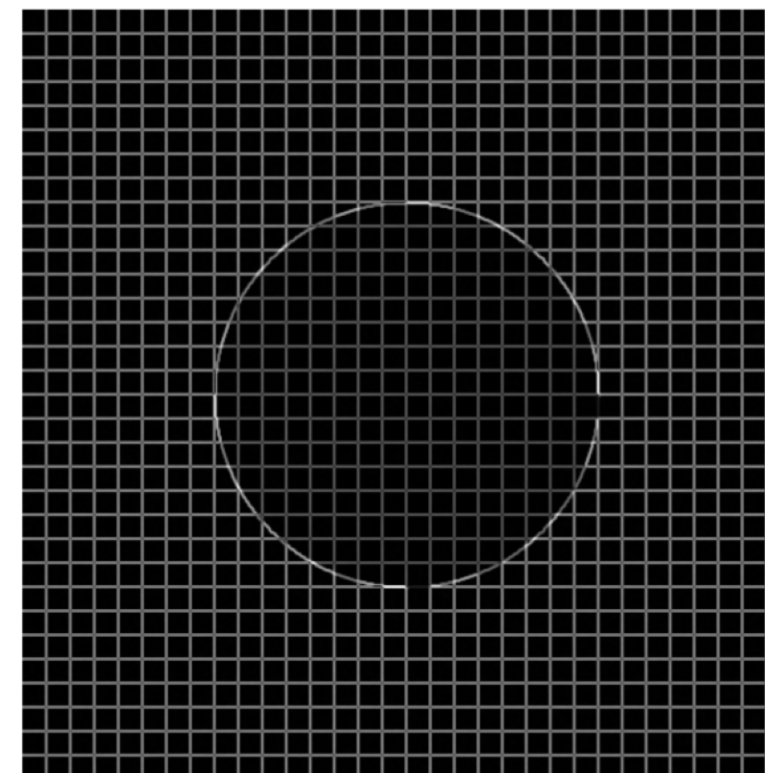
Originál



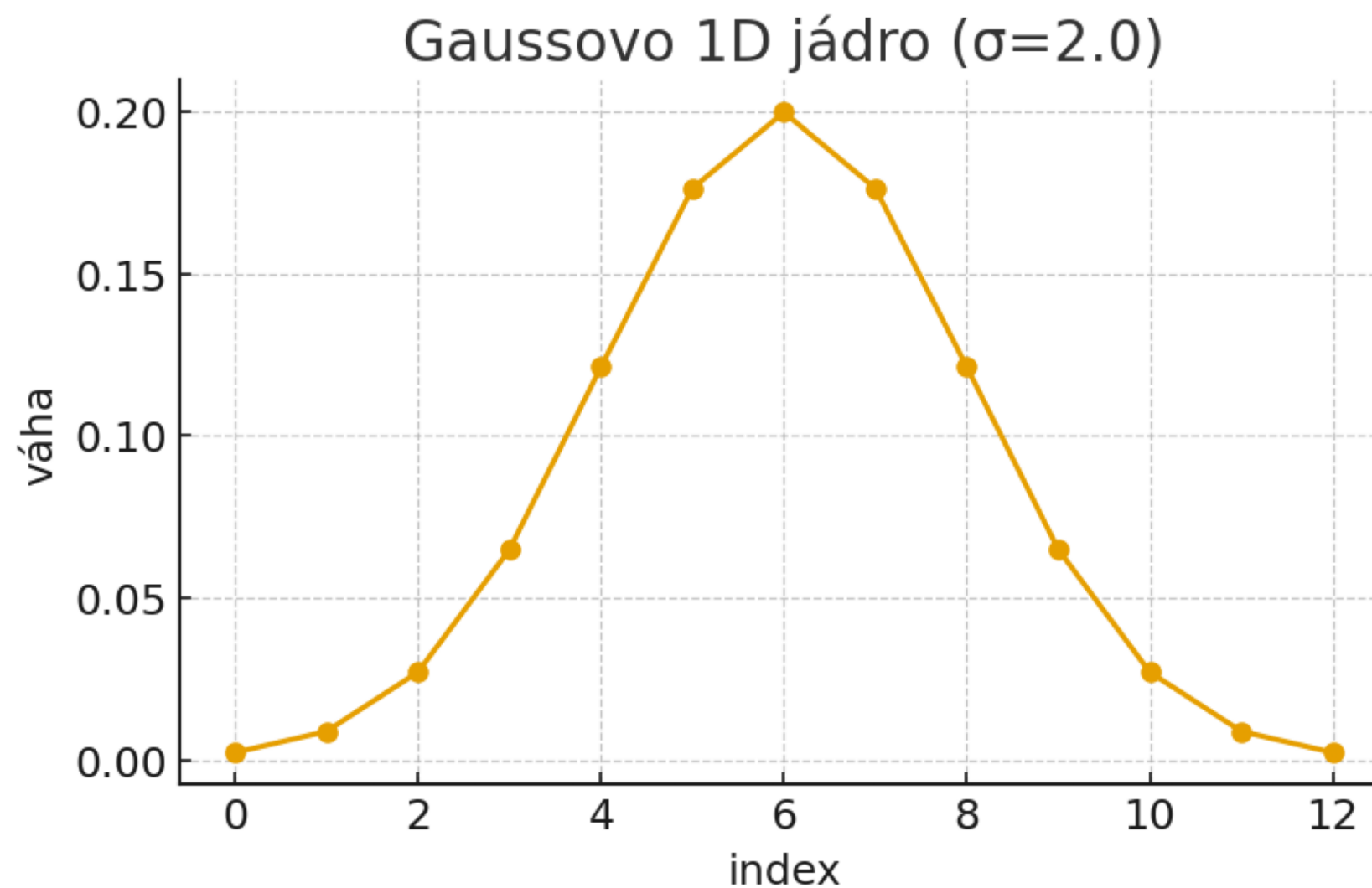
Gauss $\sigma=2.0$ (separable)



Sobel Magnitude



Gaussovo 1D jádro

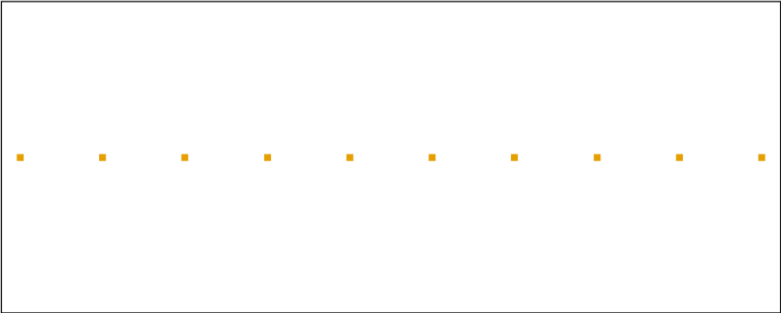


Separable: dva průchody 1D místo 2D konvoluce

Okrajové režimy

Okrajové režimy: Clamp vs Mirror

Clamp: replikuje krajní hodnoty | Mirror: odráží do intervalu

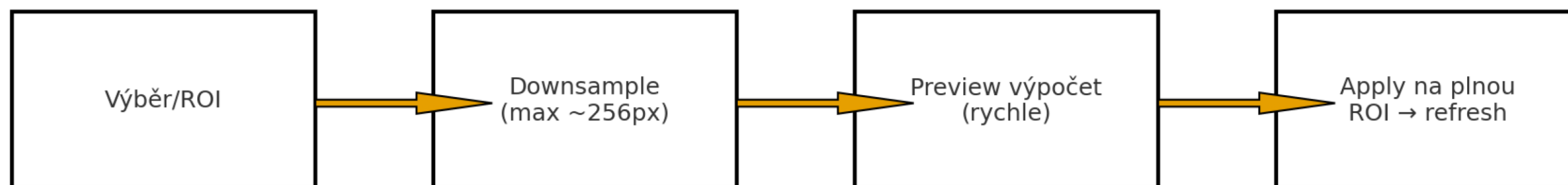


data

Clamp replikuje krajní hodnoty; Mirror odráží do intervalu

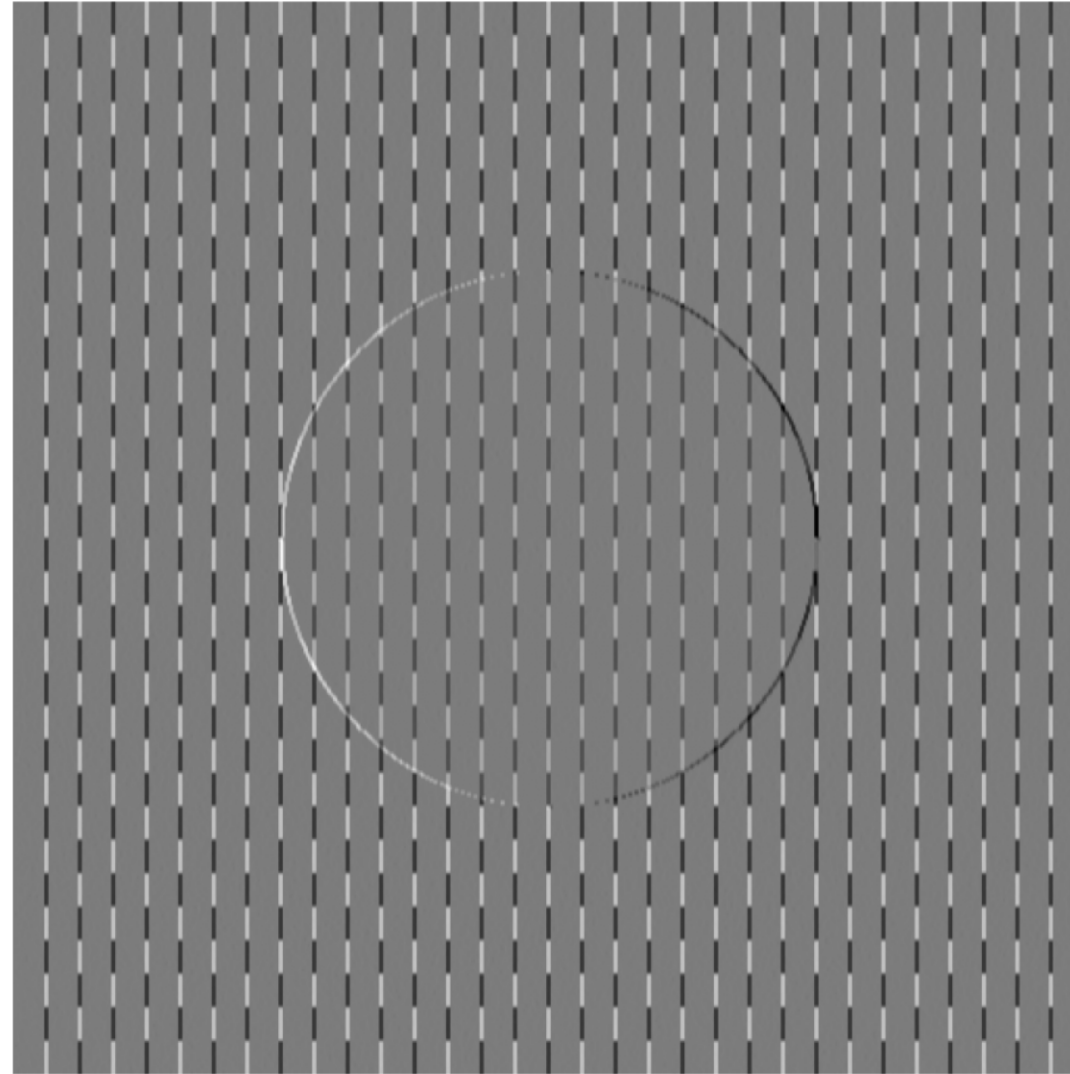
ROI preview workflow

ROI Preview → Apply (workflow)

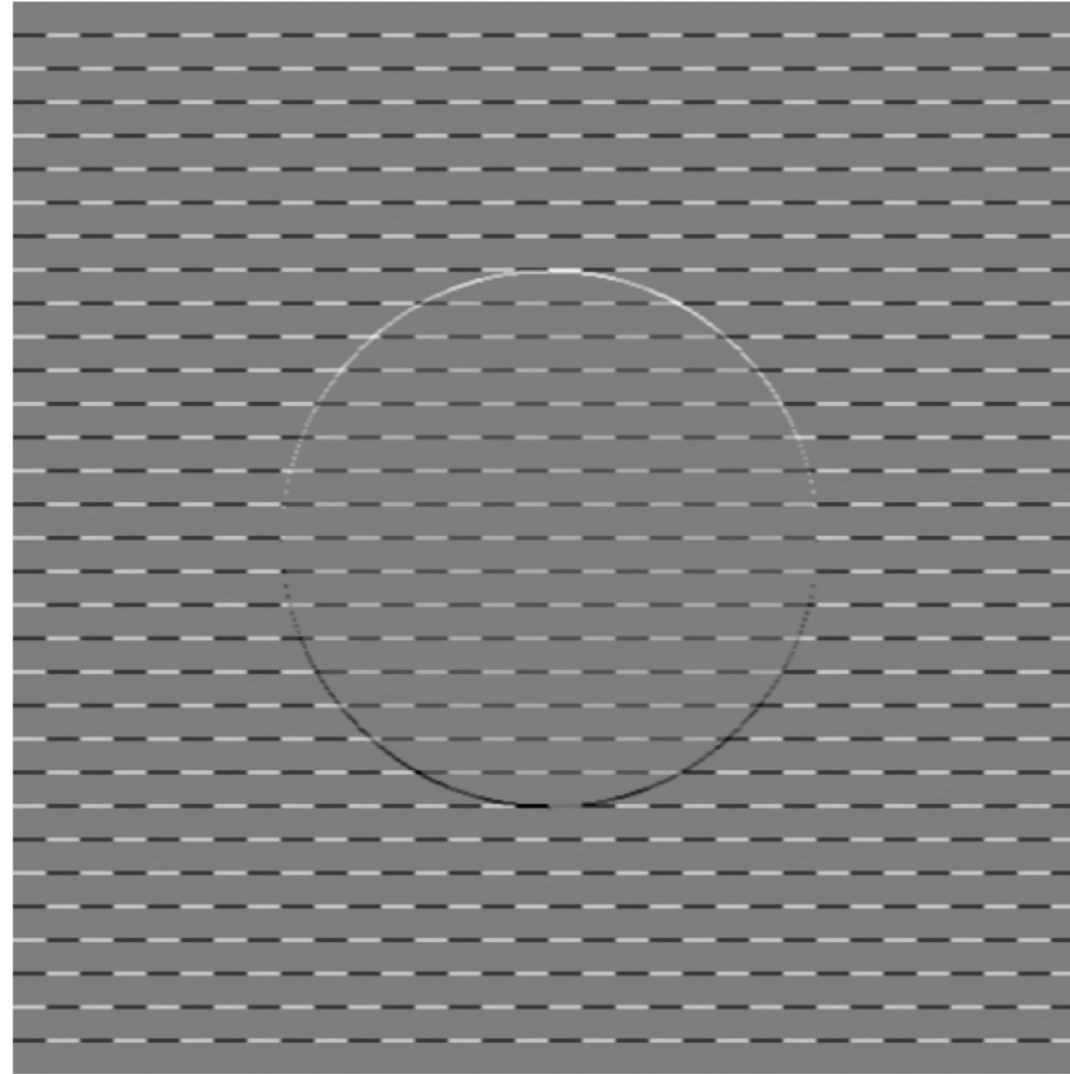


Preview na zmenšeném ROI, Apply na plné ROI + refresh

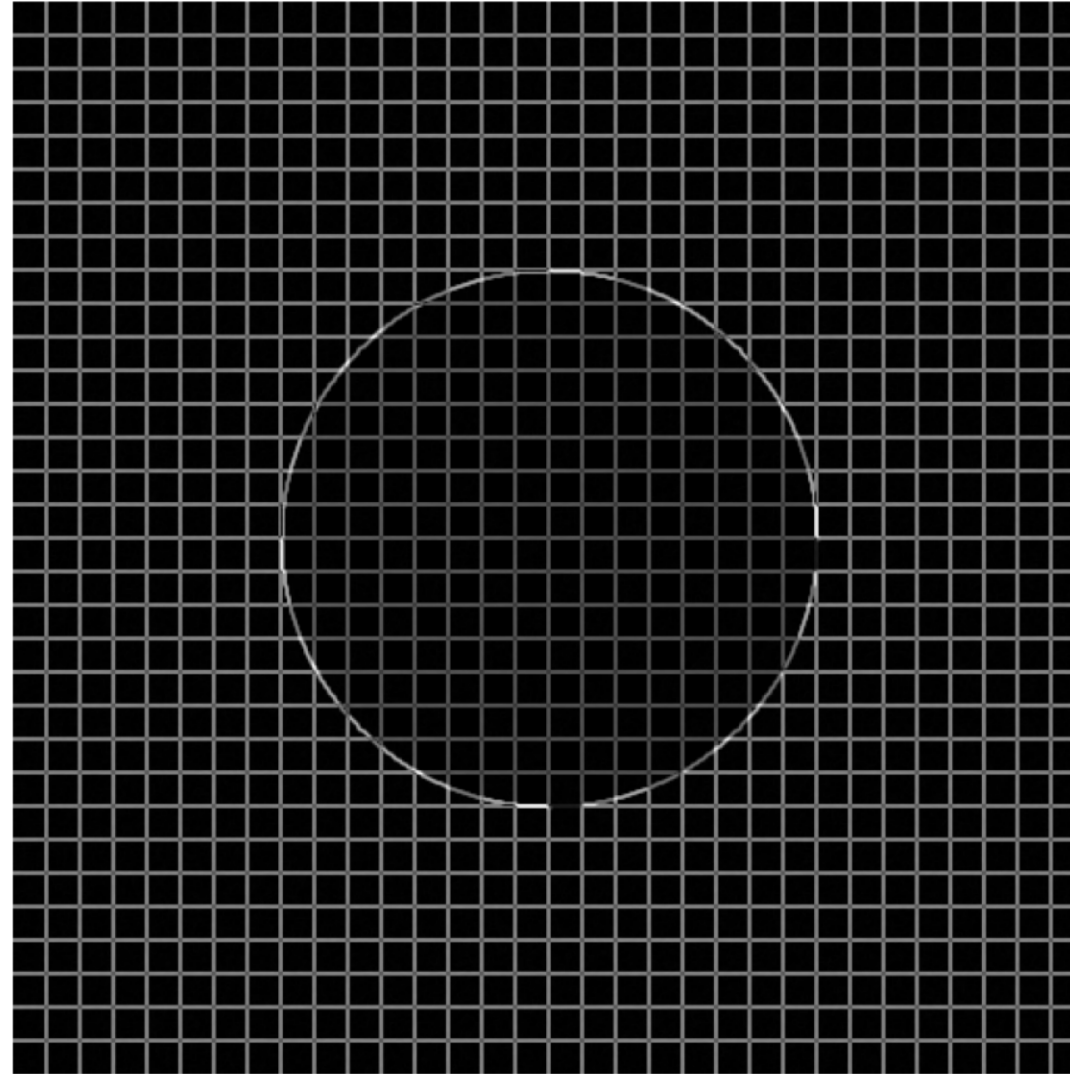
Sobel: Gx



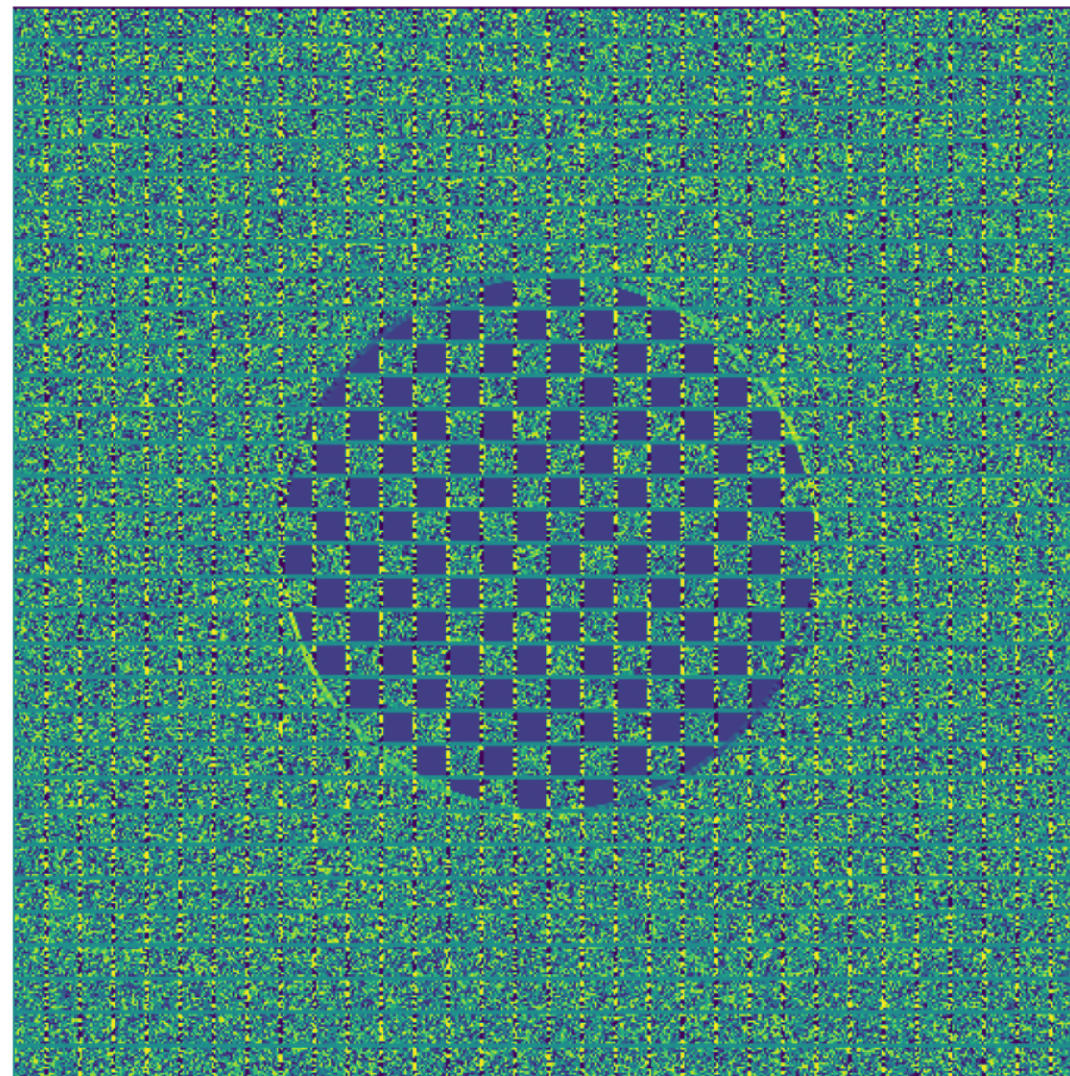
Sobel: Gy



Sobel: Magnitude

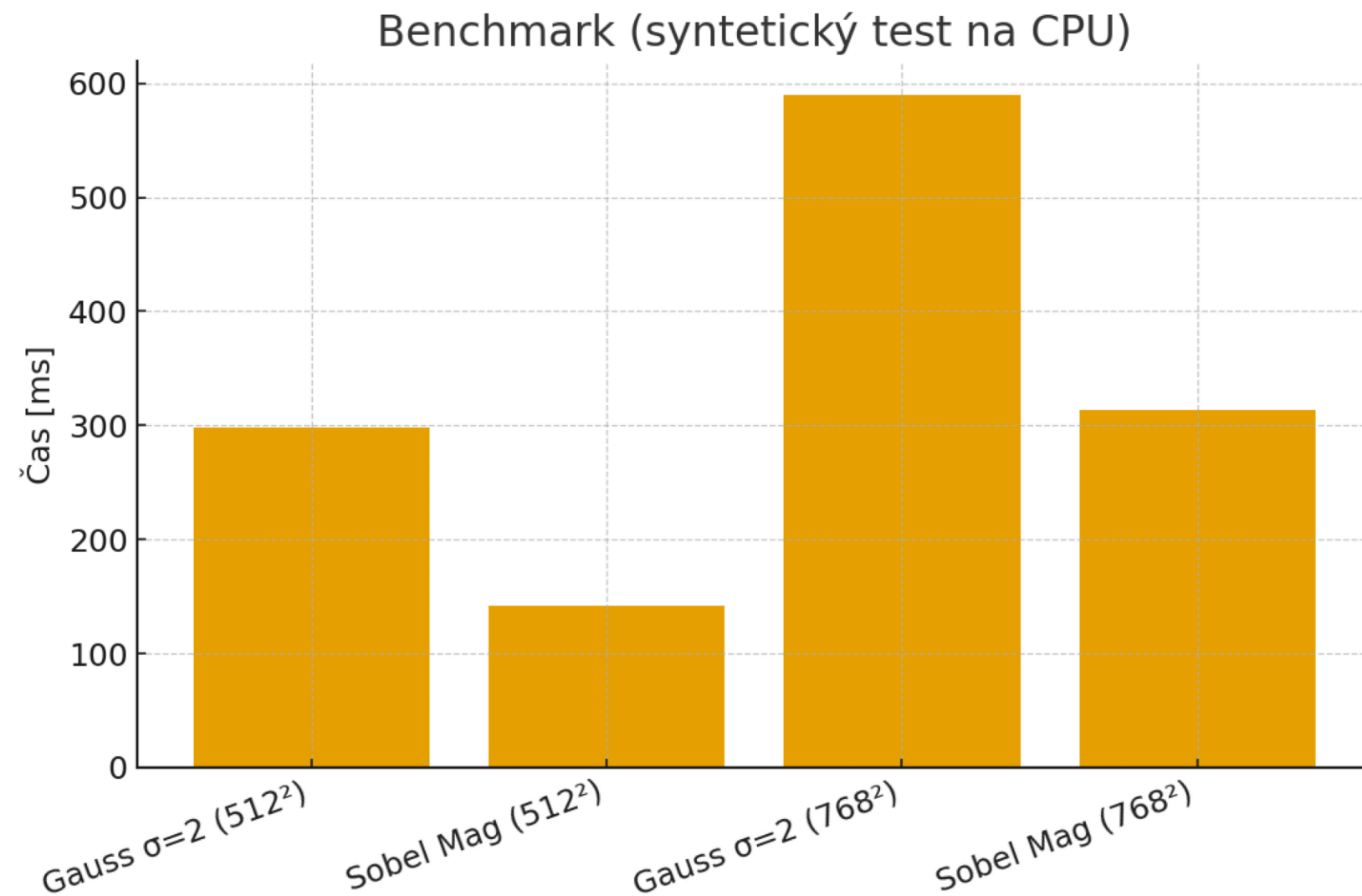


Sobel: Orientation



Úhel hrany mapovaný do 0..1 (0..180°)

Benchmark (syntetický)



Časy měřeny na syntetických obrazech (CPU, numpy)