

Estudio sobre sistemas de anti-aliasing e implementación de anti-aliasing temporal

Hugo Ferrando Seage

20 de octubre de 2018

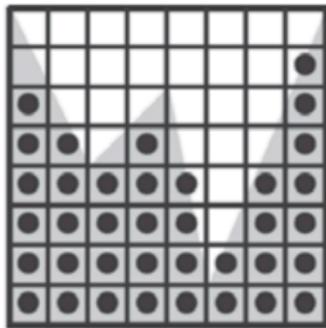
U-Tad - Máster Universitario en Computación Gráfica y Simulación

Introducción

Point Sampling



(A)



(B)



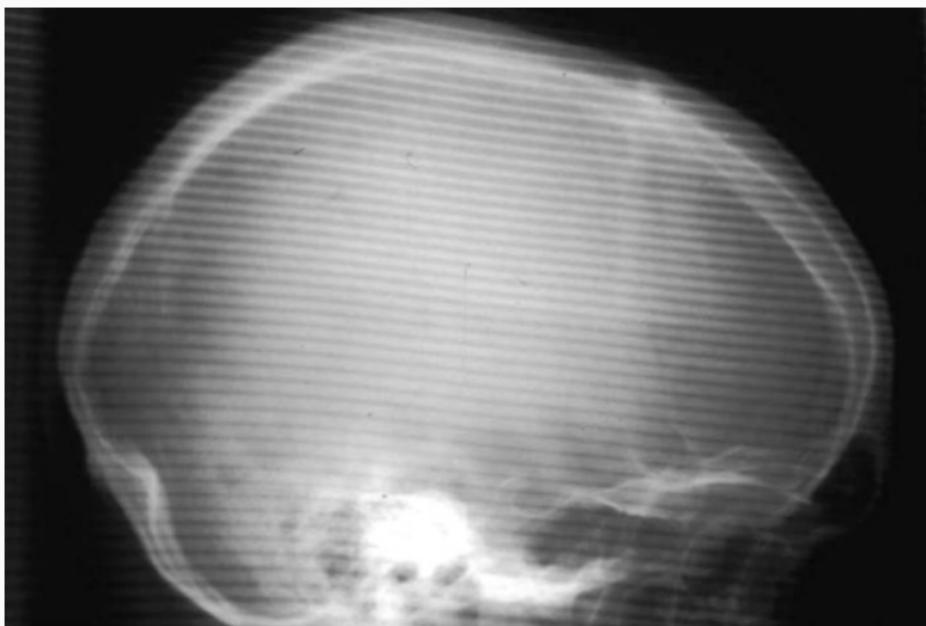
(C)

Aliasing

Bordes geometría



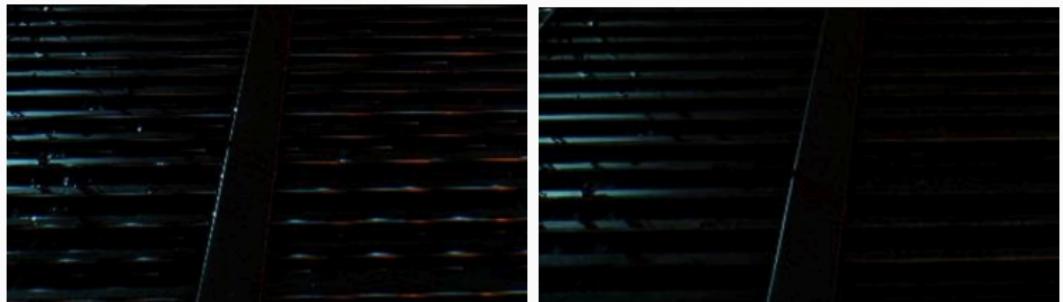
En textura



En textura

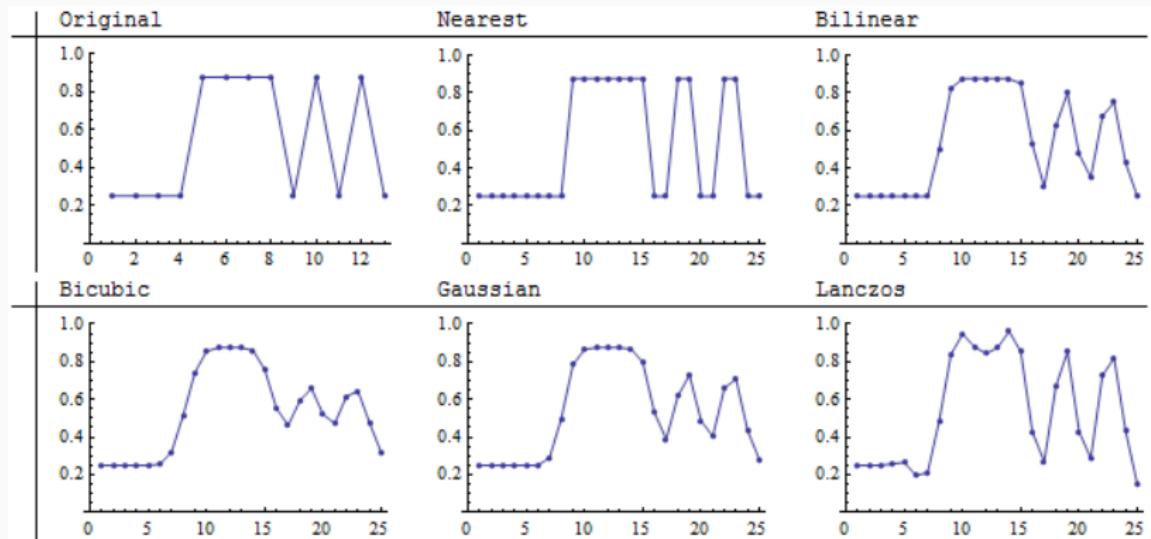


Especular

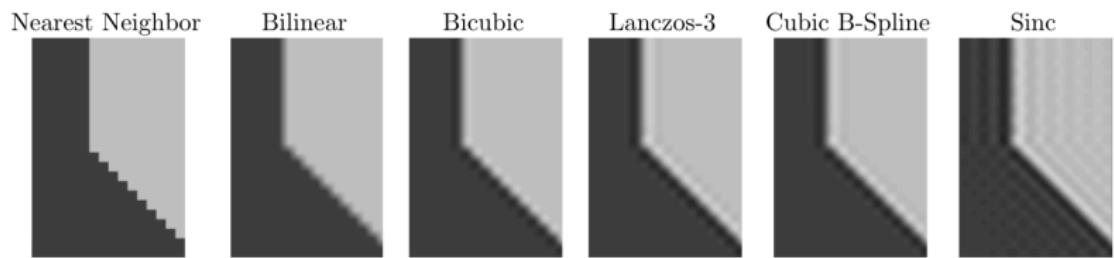


Anti-aliasing tradicional

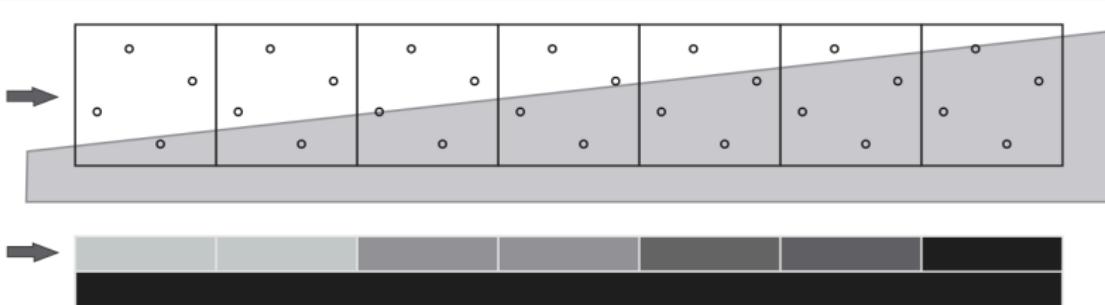
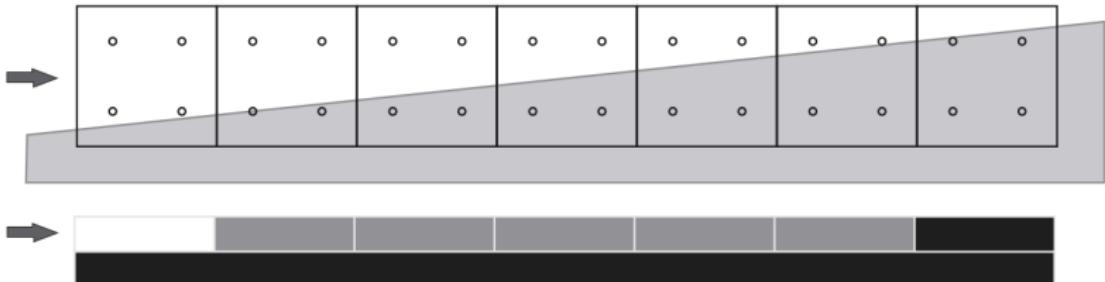
Filtros



Filtros

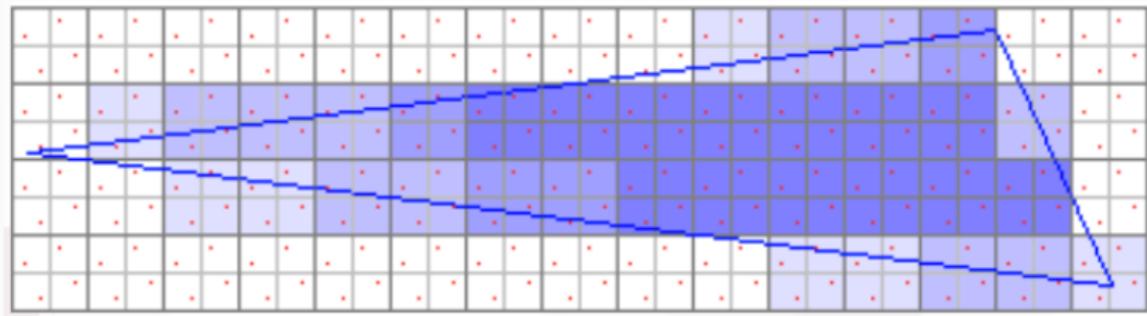


Supersampling



Multisampling

No funciona con deferred shading



Post Processing AA

FXAA, MLAA, SMAA

Inyección



Anti-aliasing temporal

History Buffer

Necesario guardar frame $n-1$ para usar en shader

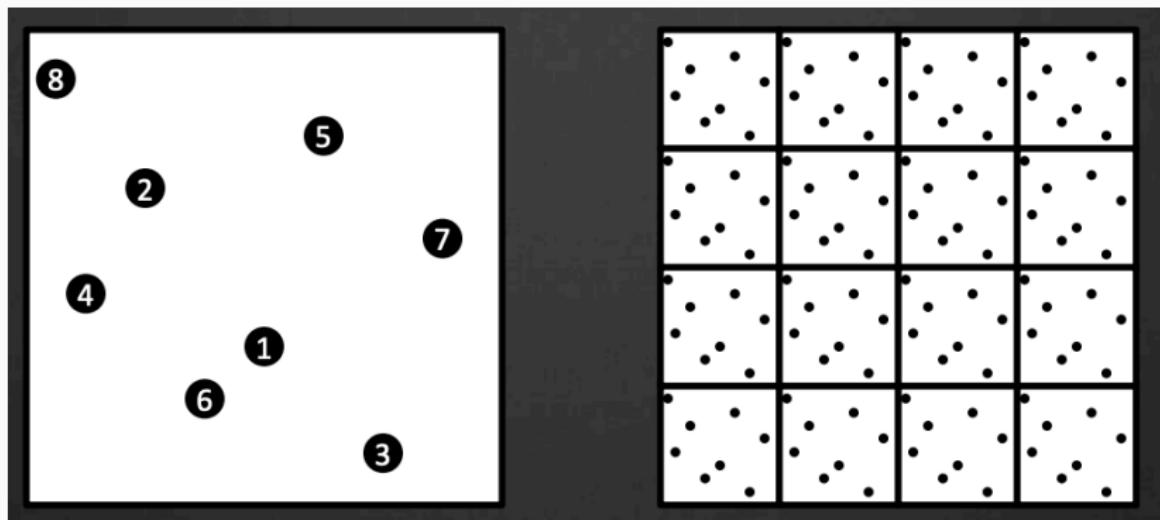


Jitter

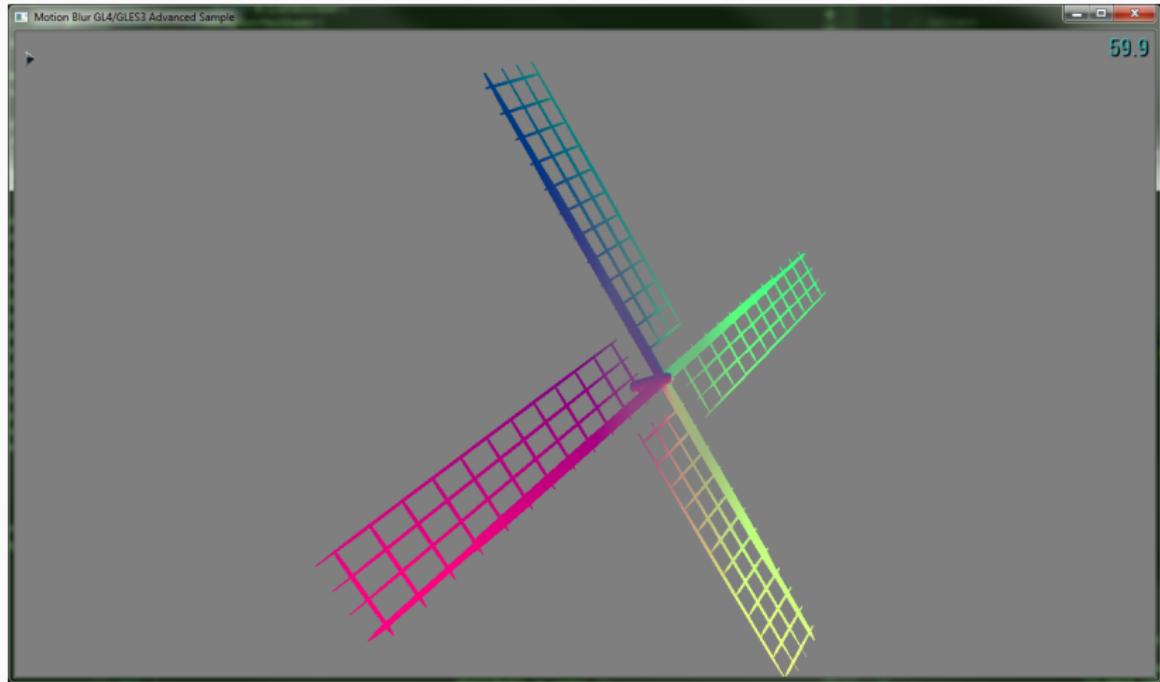
Secuencias Halton

Evita subsamples repetidos y clusters

Aplicar jitter a *MVP*

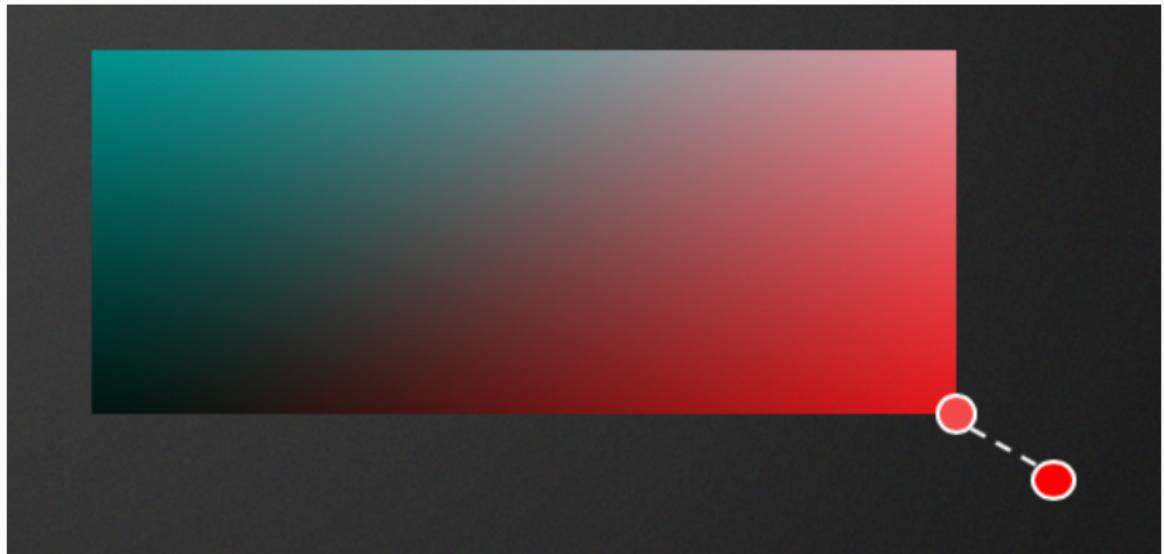


Velocity Buffer



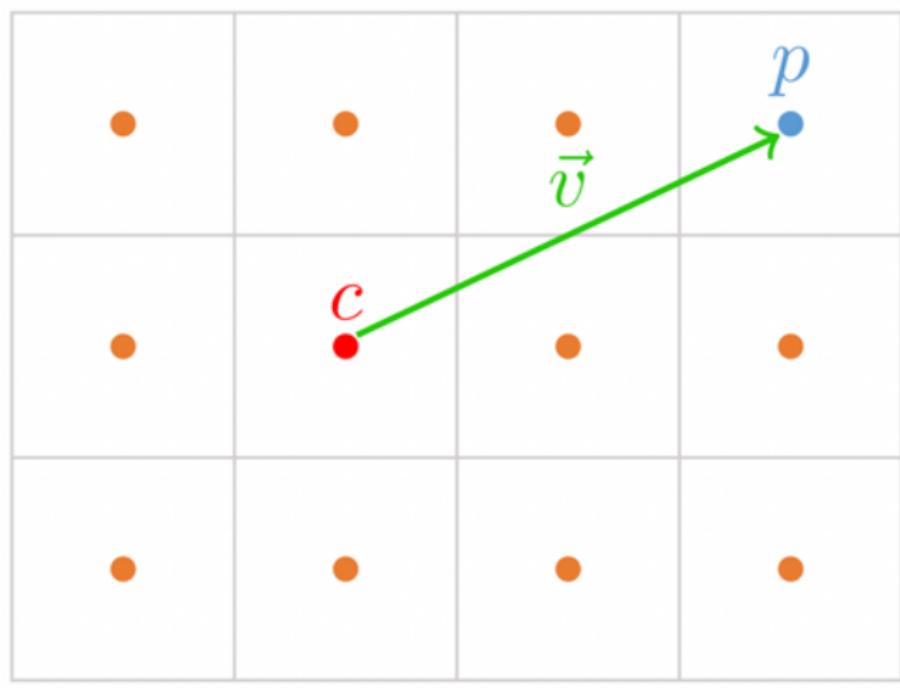
Clamping

Mirar pixels vecinos



Reprojection

Interpolación lineal (5 %)



Sharpening

$$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 5 & -1 \\ 0 & -1 & 0 \end{bmatrix}$$

Resultados

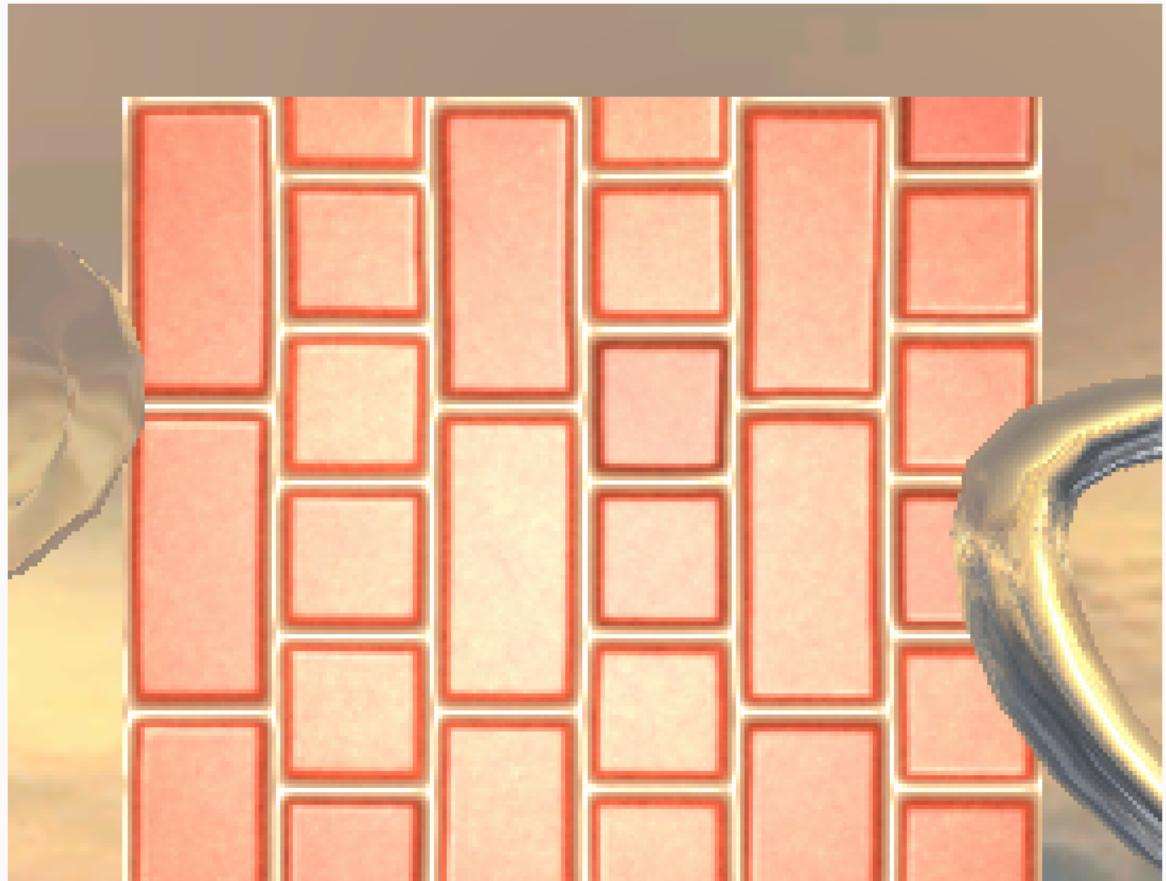
Bordes geometría



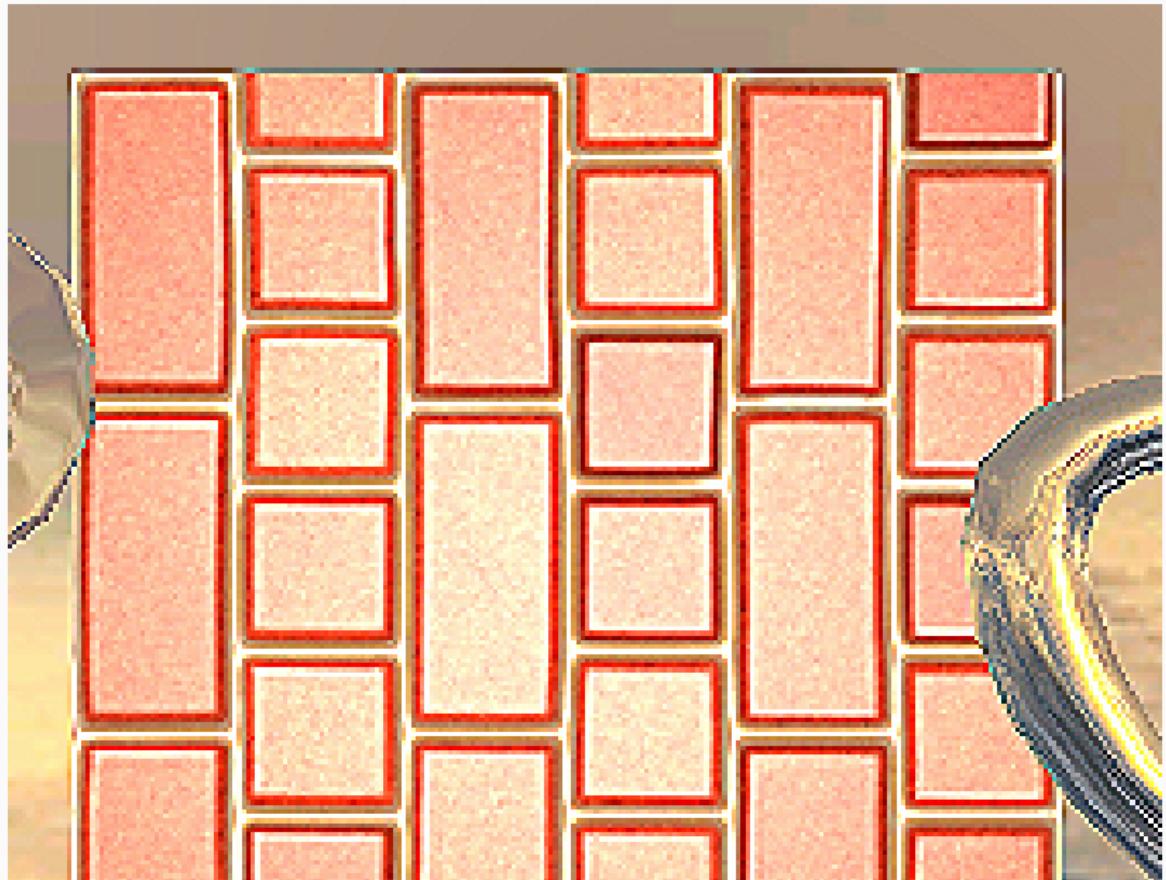
Especular



Sharpening



Sharpening



Conclusiones y mejoras futuras

Conclusión

Rendimiento, calidad



Mejoras

- Blurring
- SSAO
- Transparencias
- Reflejos

Blur



Mejoras



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