

The logo for the GPU Technology Conference is located in the top-left corner. It consists of a green rectangular box with a small triangle pointing downwards on its left side. Inside the box, the word "GPU" is written in a large, bold, white sans-serif font, and the words "TECHNOLOGY CONFERENCE" are written in a smaller, white sans-serif font to its right.

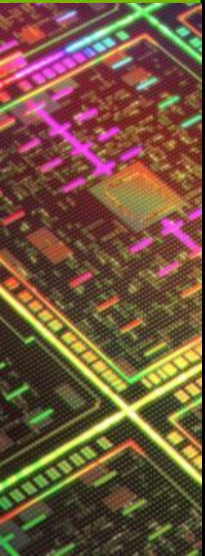
GPU TECHNOLOGY
CONFERENCE

The background of the slide is a detailed, high-resolution image of a GPU circuit board. The circuitry is rendered in a dark, almost black color, with various components and traces highlighted in vibrant, multi-colored lines. These lines, in shades of red, orange, yellow, green, cyan, and magenta, create a complex, grid-like pattern that recedes into the distance, giving a sense of depth and technological sophistication.

GPU Enablement of Adobe Photoshop

GPU Usage In Photoshop

- Initial OpenGL use shipped in CS4.0
 - GPU Canvas
 - 3D Interactions
- Continued Refinements in CS 5.0
 - GPU enabled UI
 - PixelBender
- Applied to Content editing in CS 6.0
 - OpenCL enabled Feature




NUIs - iEnvy moves to the desktop



CES - 20 inch 4k x 2k panel - 220 DPI

World's smallest and thinnest 4k x 2k LCD monitor

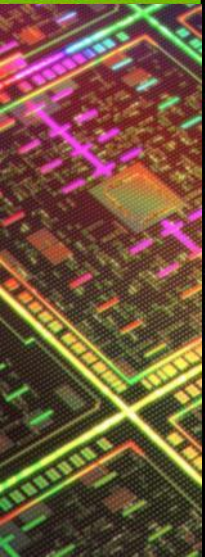


- 8 million pixels
- 3.5mm thin
- IPS-Pro technology
- Ultra-high brightness

panasonic

The toll for Full screen immersion

- 2650x1600 monitor in full screen mode at 66.7% 4016 x 2424
 - 8 Bit - 200 megs per frame = 12 gigs per second
 - 16 bit - 400 megs per frame = 24 gigs per second
 - 32 bit - 800 megs per frame = 48 gigs per second
- 3840 x 2160 monitor in full screen mode at 66.7% 5818 x 3272
 - 8 Bit - 400 megs per frame = 24 gigs per second
 - 16 bit - 800 megs per frame = 48 gigs per second
 - 32 bit - 1600 megs per frame = 96 gigs per second

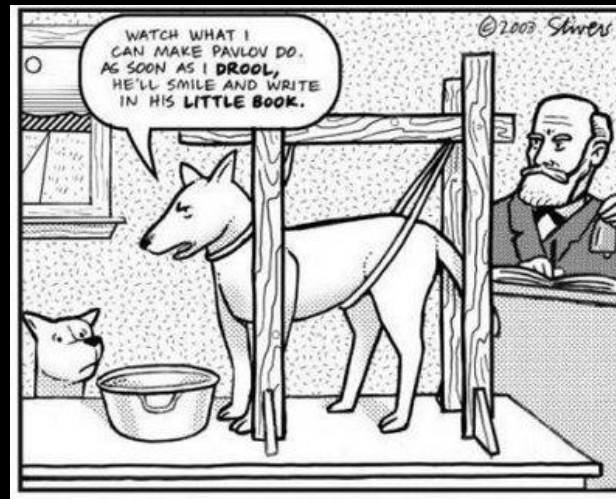
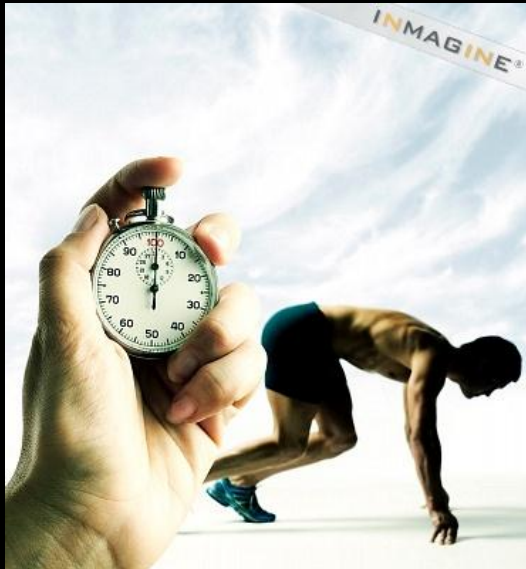


Latencies of the Most Powerful Processor

Visual latency - 60fps – 17ms – 1/60th of a second

Skeletal muscle innervation - Best 100ms - 1/10th of a second Slowest – 250ms – ¼ of a second

Conditioned response – aka wrote learning – 8 hours minimum.



Content-Aware Wide-Angle Correction

Aseem Agarwala, Robert Carroll
CTL

Dong Feng, Haoyan Li, Chao Du, Jingyuan Bai
ASC

Jeff Chien
Photoshop



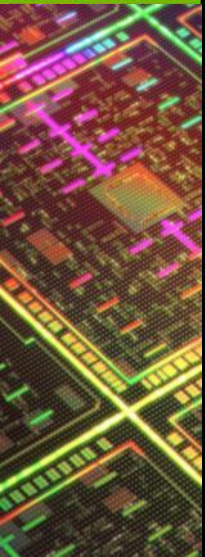
Adaptive Wide Angle



Liquify

- Performance Improvements

- Time for dialog to open and display initial image is 87x faster on 15x by 15k images
- Time to final render a 15k by 15k image with a complex distortion is 32x faster
- Warping brushes lagged very noticeably in CS5, with the GPU implementation there is no perceptible lag

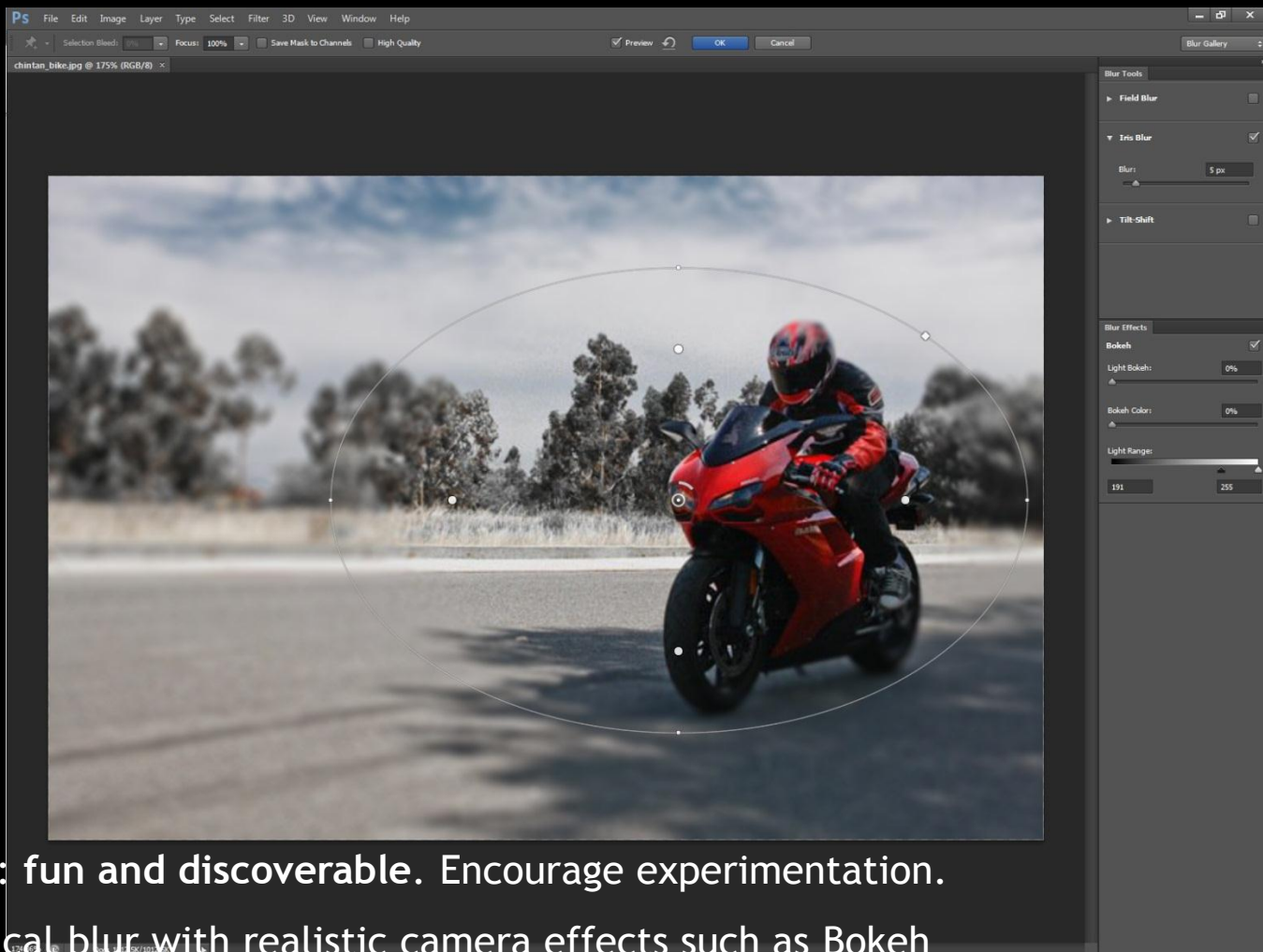


Liquify Details

All the data for warping is moved into Video memory(reduced in resolution if necessary to fit GPU resources).

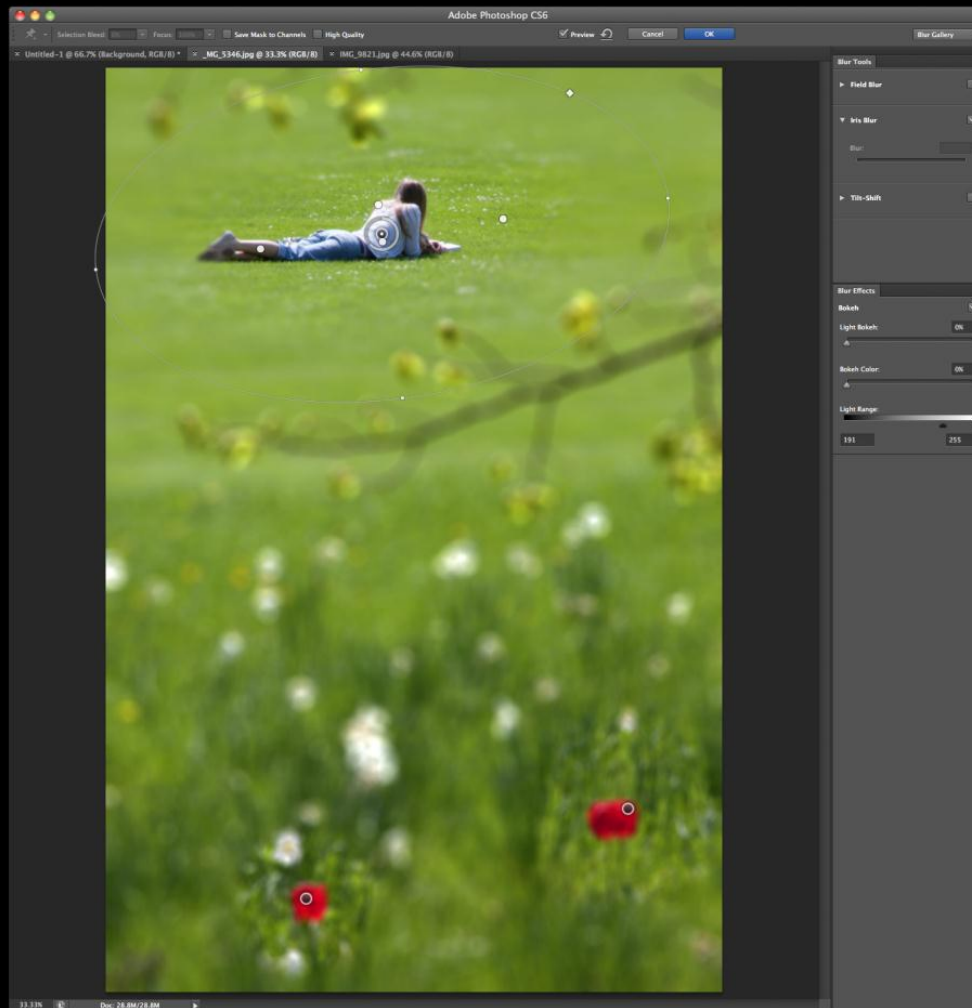
-
- The GPU is used to accelerate:
 - - Interactively update the distortion texture
 - - Display the distorted image in the preview window at a fixed 60FPS
 - - Render the final output in full image resolution with high quality filter kernel
 - - Composite in the cursor
 - - Composite in an onion skin reference layer
 - - Composite in transparency checkerboard
 - - Composite in alignment grid

Blur Gallery

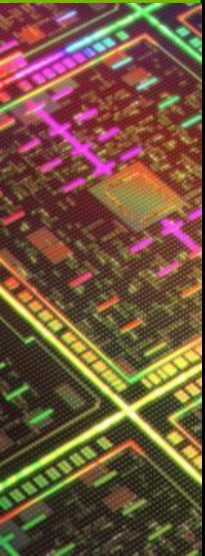
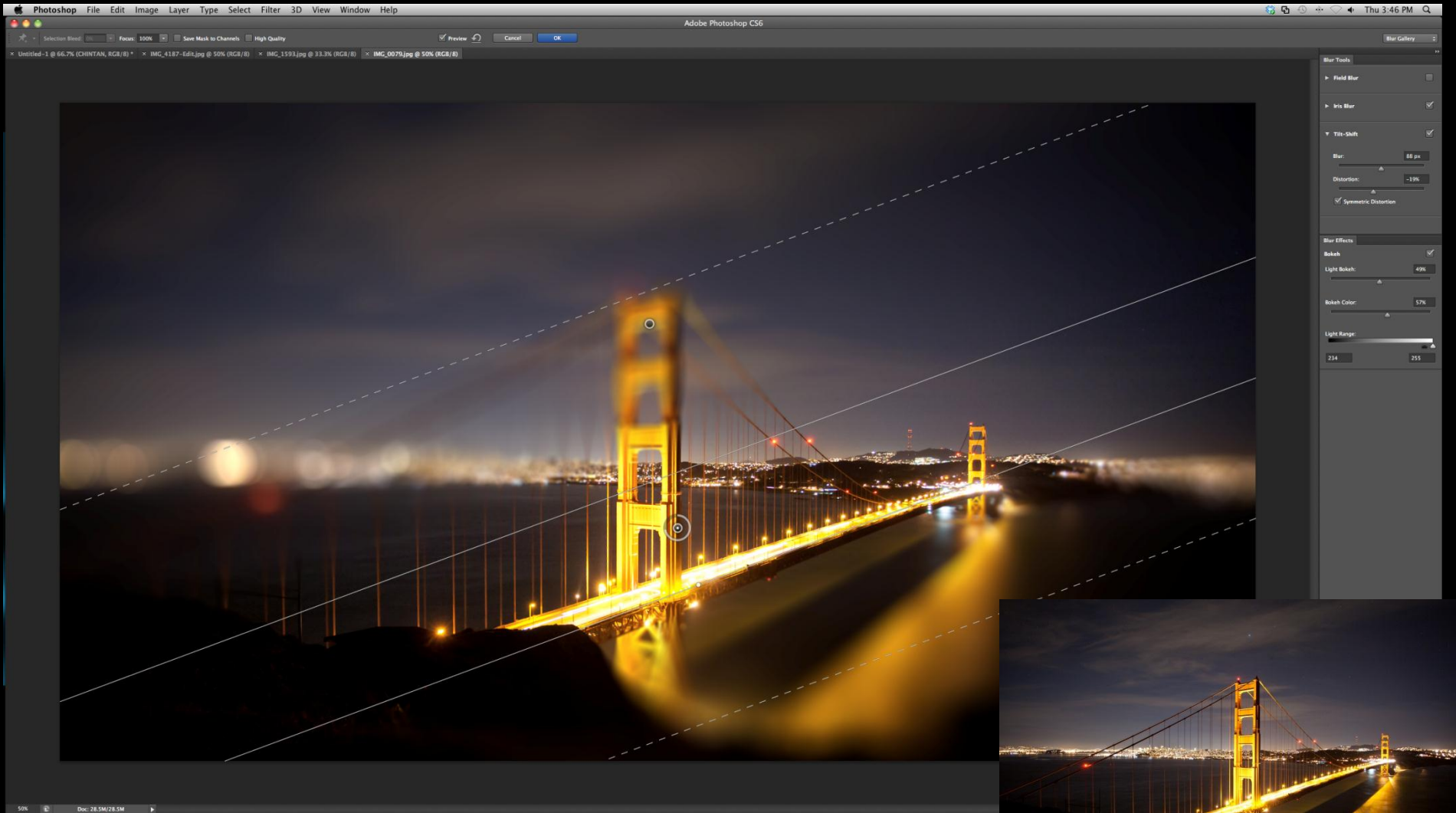


- New interaction model: fun and discoverable. Encourage experimentation.
- Spatially-varying elliptical blur with realistic camera effects such as Bokeh
- On-canvas controls allow easy manipulation of a parametric mask used to modulate the blur radius and distortion fields.
- Computation accelerated via **OpenCL** to provide interactive user experience

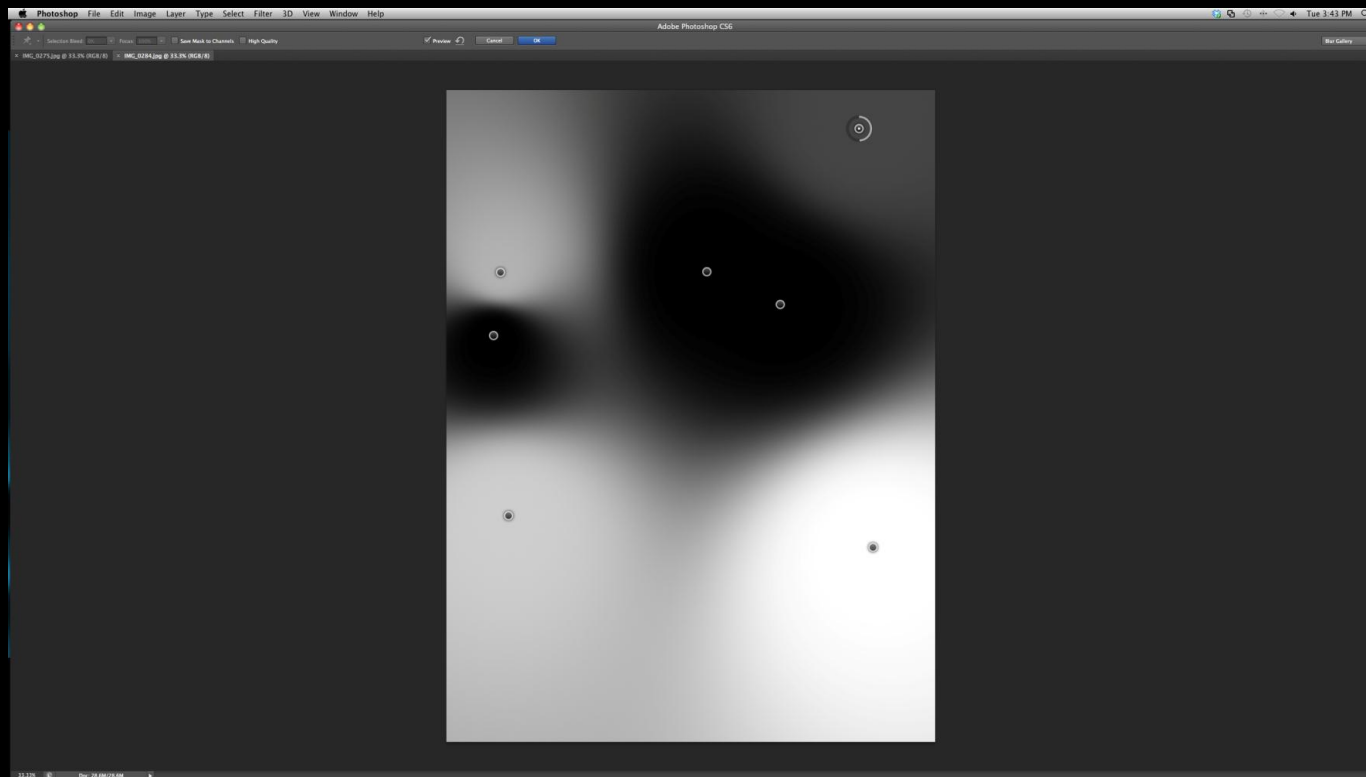
Iris Blur



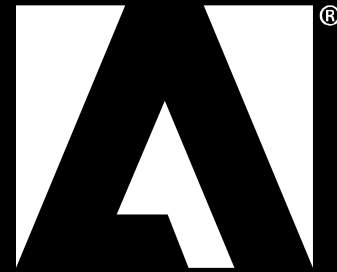
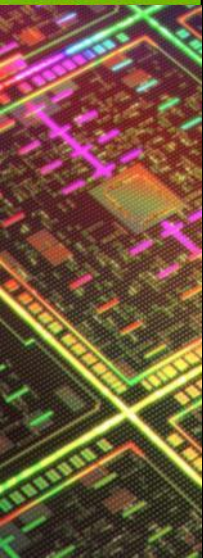
Tilt Shift



Field Blur



The above picture shows an example of a parametric mask generated by **Field Blur**.



Adobe

GPUey goodness