

Vello demo

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Vello

- A 2D graphics rendering engine for modern GPU
- Architecture:
 - Efficient, declarative, binary encoding of 2D graphics
 - Cheap to encode and manipulate CPU-side
 - A pipeline of compute shaders
 - WebGPU + WGSL
- Performance:
 - 120 fps for paris-30k SVG test image on M1 Max
 - 50k paths, ~1M path segments
 - Performance scales with GPU power

Vello imaging model

- Paths (fill & stroke)
- Gradients (linear, radial)
- Clips
- Blend modes (+ alpha groups)
- Images
- Text (glyph runs)
 - Currently renders paths dynamically; future: glyph cache

Vello demo

- Demo app
 - SVG
 - test scenes
- [Velato](#)
 - Runs Lottie animations
- Font rendering
- Rendering in browser with WebGPU

Vello resources

- Repo (Apache 2 + MIT):
 - [linebender/vello](https://github.com/linebender/vello)
 - Apache 2 + MIT license
 - Rust, uses wgpu
- WebGPU demo:
 - levien.com/vello-demo
 - Use Chrome Canary, enable `chrome://flags/#enable-unsafe-webgpu`
- Discussion forum:
 - [xi.zulipchat.com #gpu](https://xi.zulipchat.com/#gpu) stream

A recording of this presentation will be available at
<https://www.khr.io/105>

For more information on WebGL, please visit
<https://www.khronos.org/webgl>

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