

TokyoDemoFest 2012
Syoyo

aobench

- small. ~400 lines
 - But include many essence of math for graphics
 - `cos()`, `sin()`, `sqrt()`
 - vector, quadratics
- First appears at 2008
- Realworld floating point program

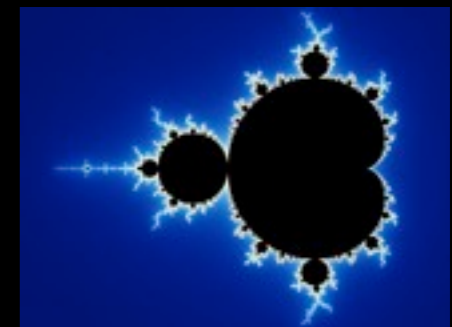
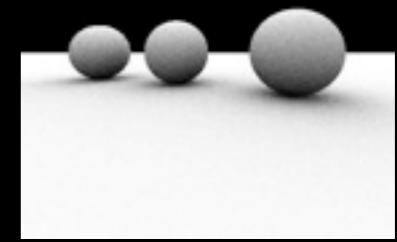
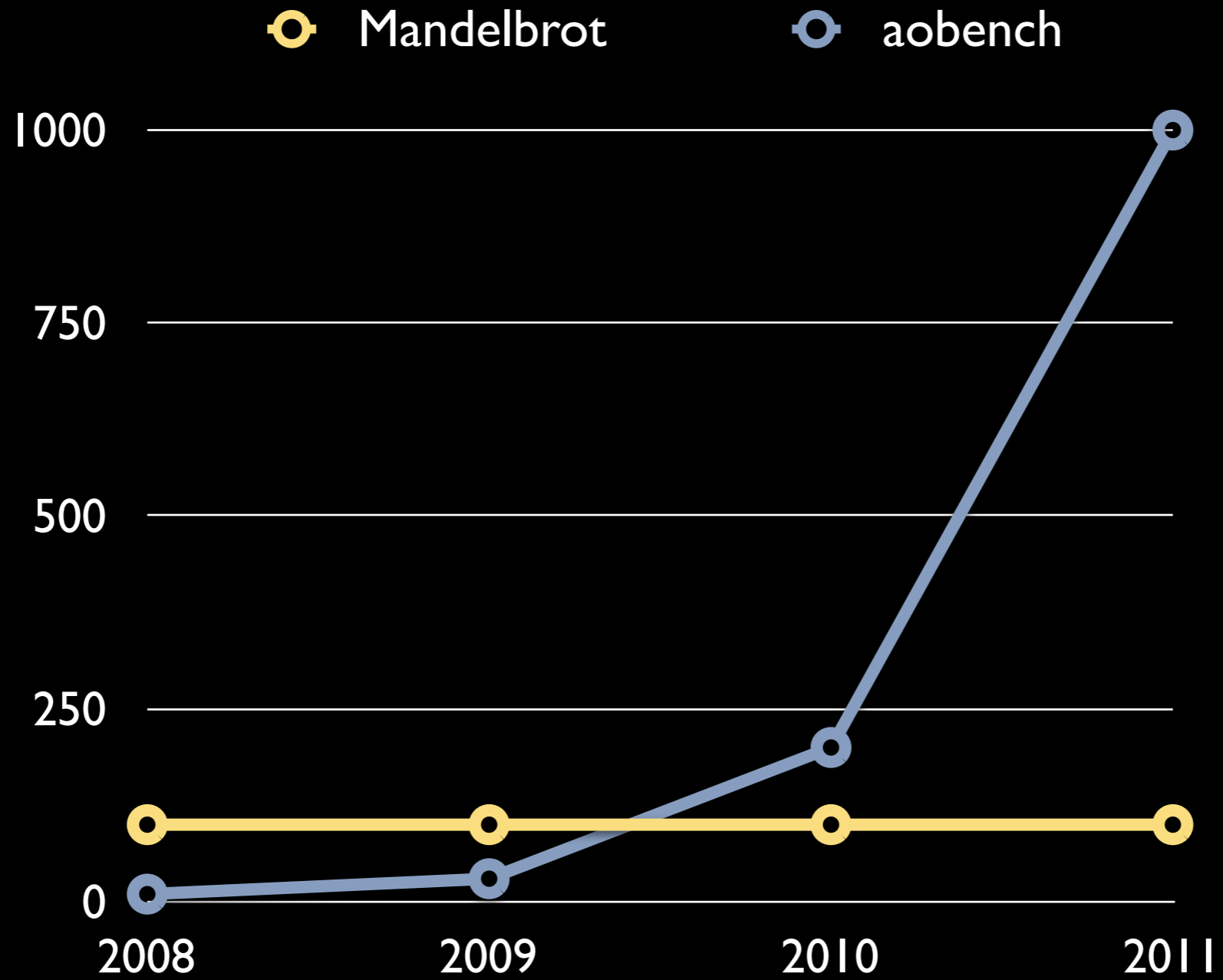
3 years later...

- Now as popular as **Mandelbrot!**



SCII
Intel booth

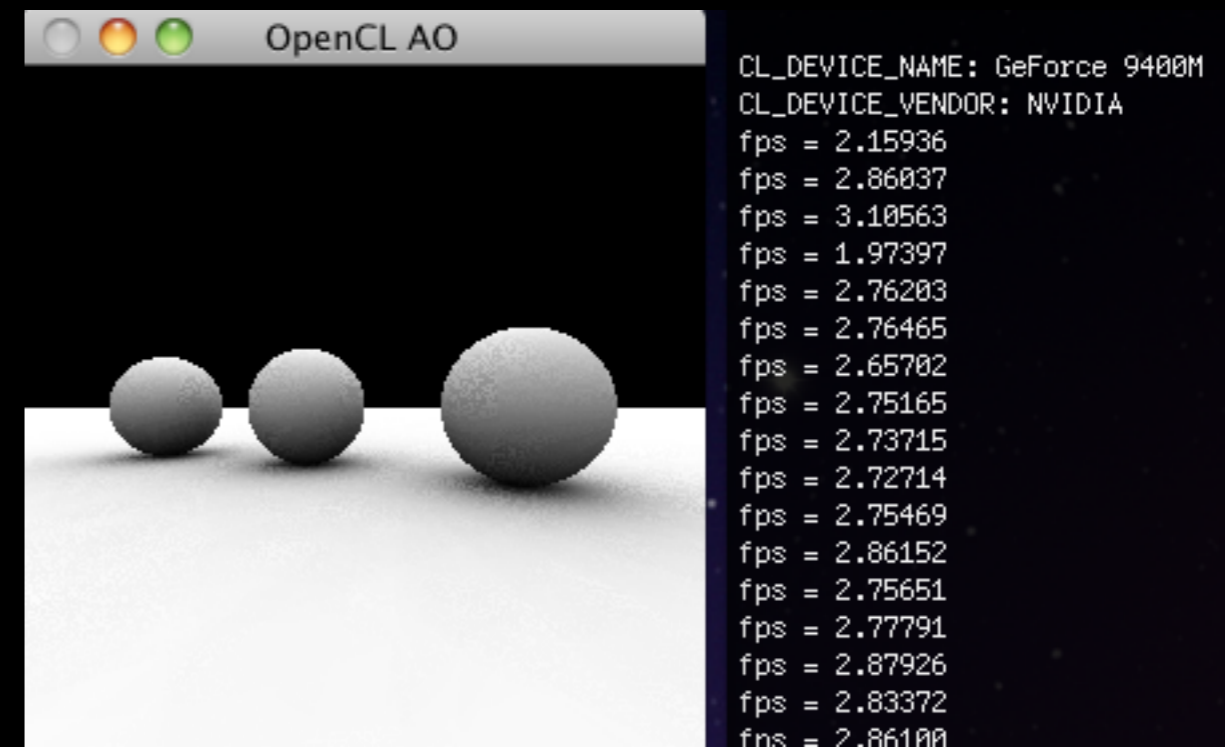
Popularity



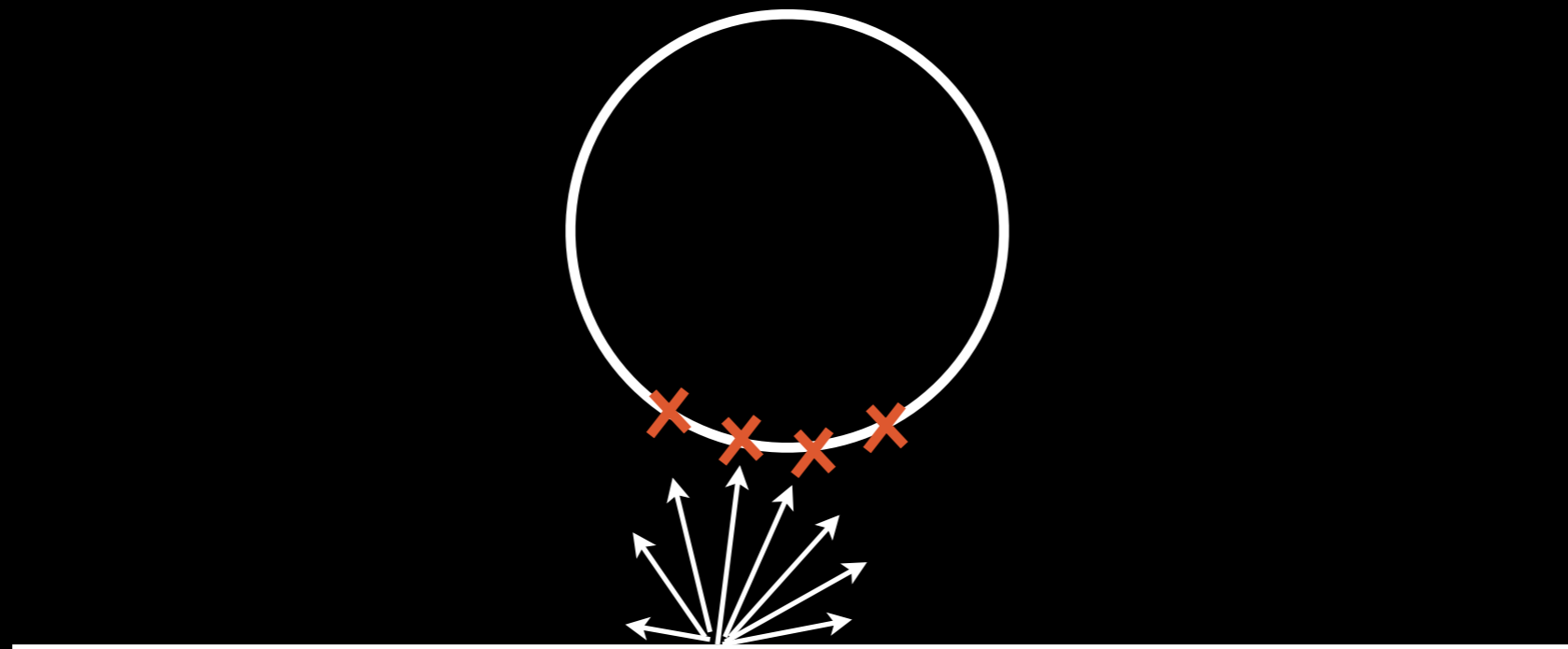
Source: My wish

Languages

- C/C++
- JavaScript/Scheme
- Ruby/Python
- Haskell/Ocaml
- GLSL/OpenCL by **systemk**
- And more! 30+ languages

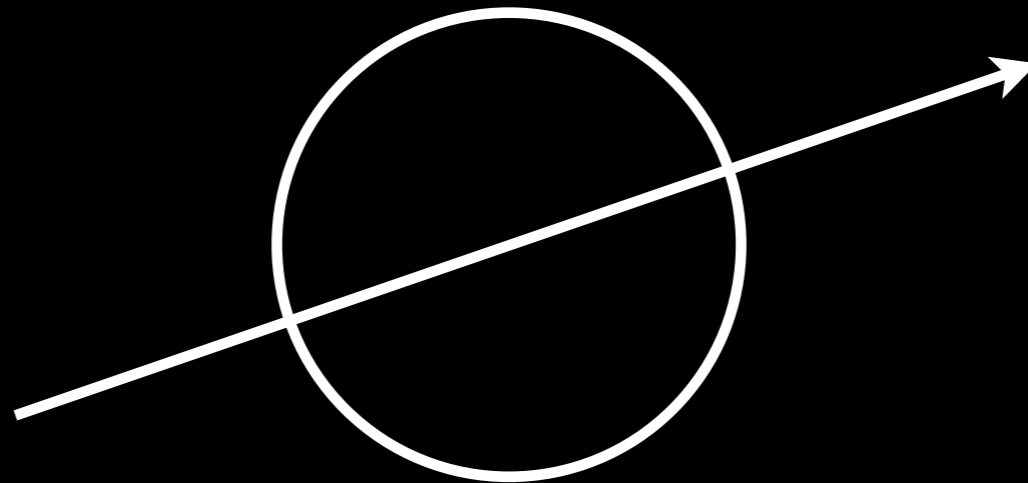


Ambient occlusion



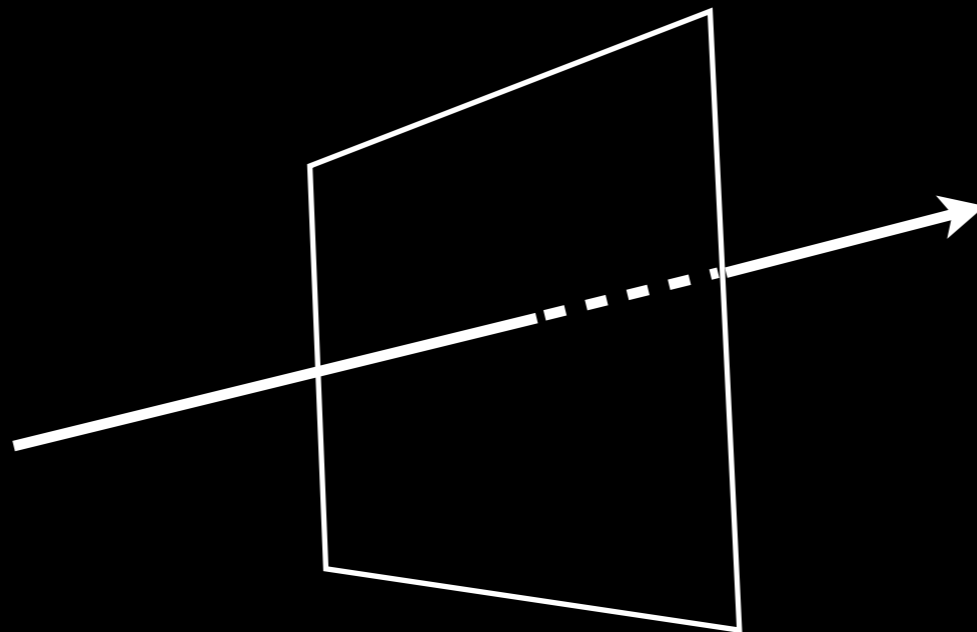
Ray-Sphere Isect

- Simply quadratic equation



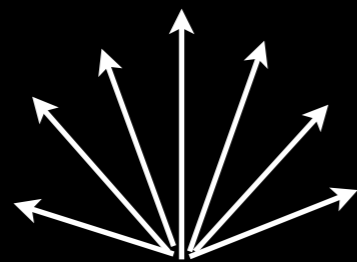
Ray-Plane Isect

- Also simply quadratic equation

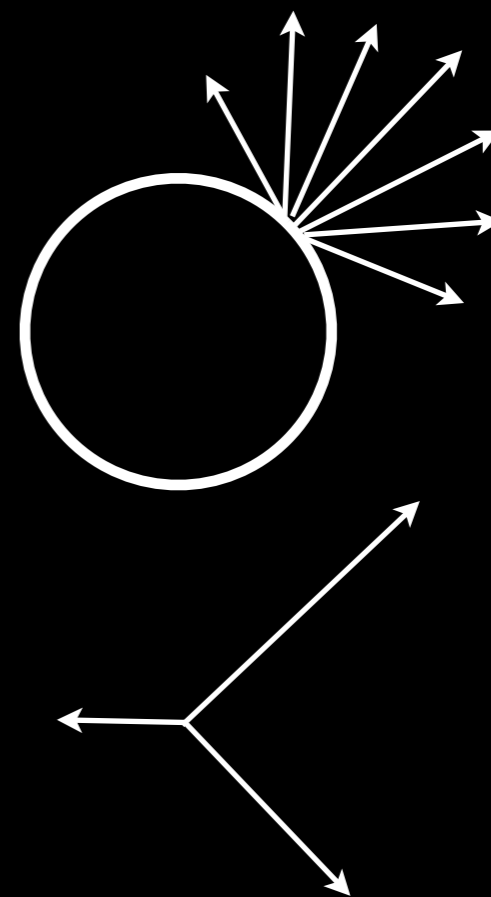


orthoBasis()

local



world



Application

Shader

```
Live Coder
uniform sampler2D optTex;
uniform vec2 resolution;
uniform vec2 mouse;
uniform float lowFreq;
uniform float time;

void main() {
    vec2 pos = vec2(0.5, 0.5) - gl_FragCoord.xy / resolution.y;

    float d = length(pos);
    float a = atan(pos.y, pos.x);

    // vec2 tex = vec2(time + 2.0 / (6.0 * d + 3.0 * pos.x), 3.0 * a / 3.14);
    vec2 tex = vec2(time + 2.0 / (6.0 * d + 3.0 * pos.x), 4.0 * d / 3.14 + 3.0 * a / 3.14);

    float f = min(1.0, d/0.3);

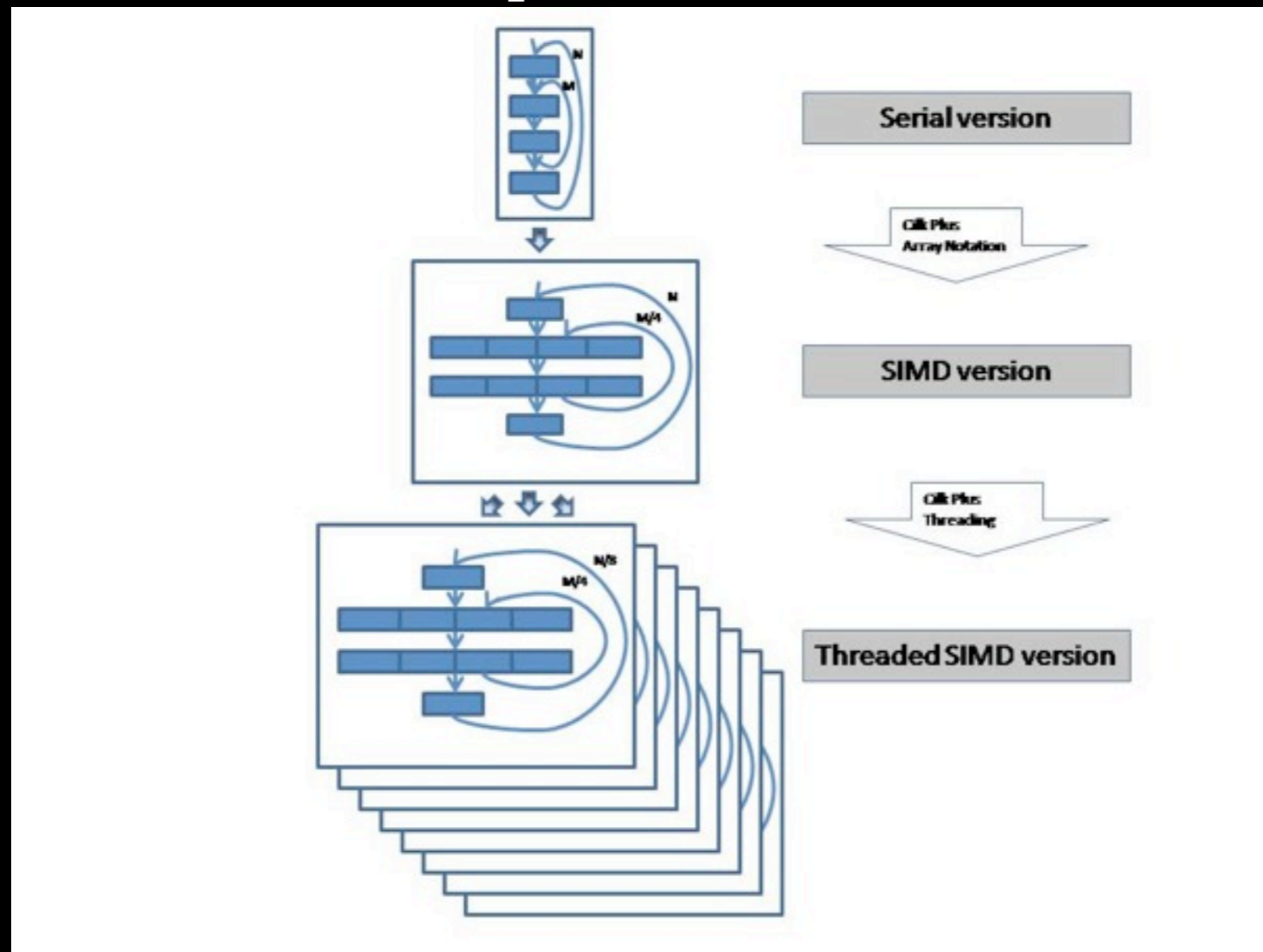
    gl_FragColor = texture2D(optTex, tex) * f;
}

shader1.glsl
F1-F10: Change View F11: Show/Hide code F12: Edit PostFx
```

AO texture baking



Benchmark for code optimization



Future

Extreme aobench

- Challengers wanted!



Challengers wanted!



Not a coder?

ramen-syoyo.dotcloud.com



Thank you!

<http://code.google.com/p/aobench/>