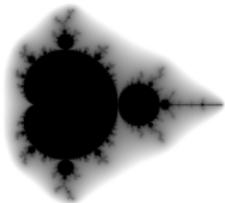


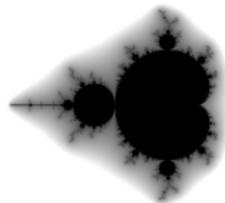
Making a Mandelbrot Movie

<http://dotat.at/prog/mandelbrot/>

Tony Finch <dot@dotat.at>



Cambridge Geek Night 6

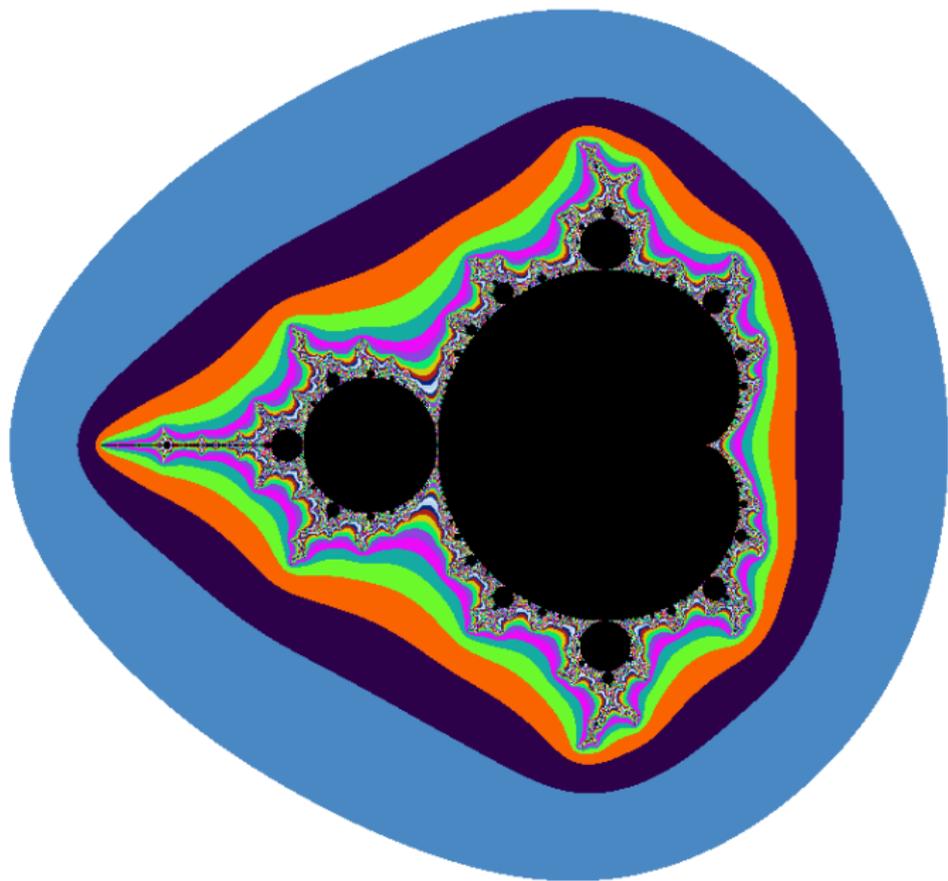


Monday 8 November 2011

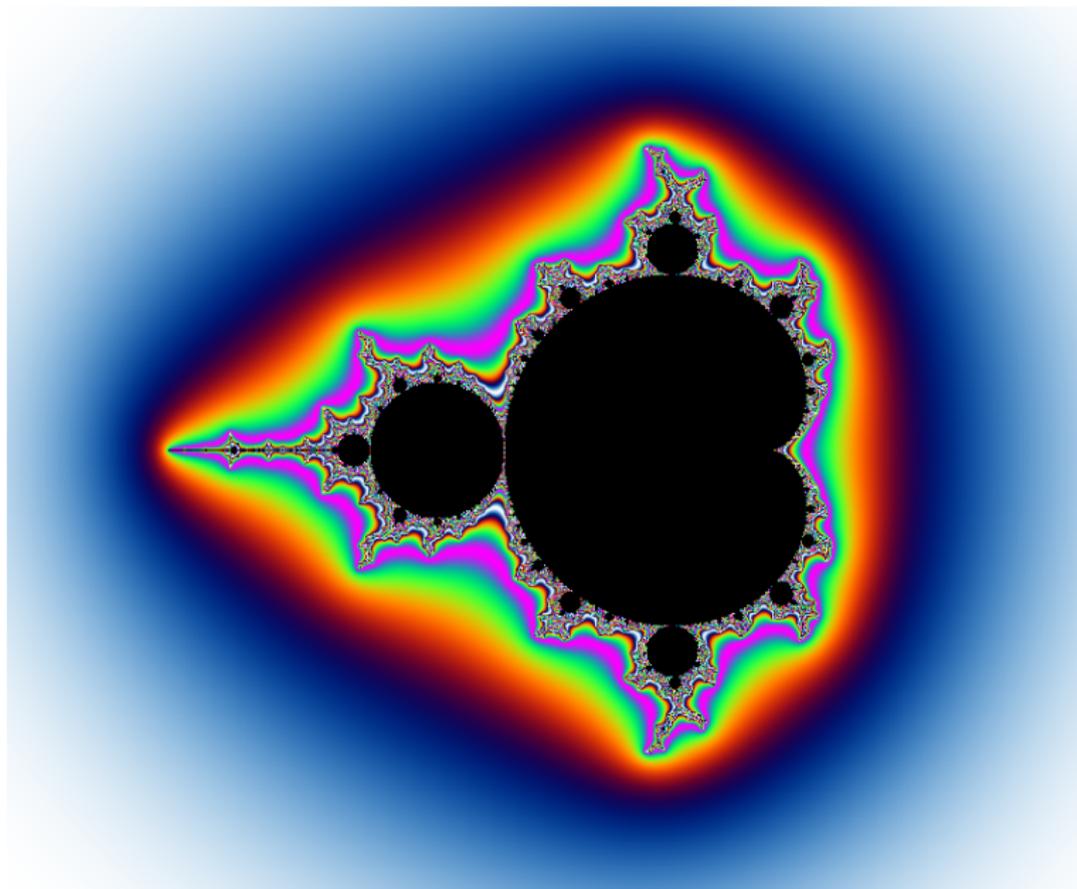
Benoît Mandelbrot, 1924 – 2010



Coloured level sets



Renormalized iteration count



Renormalized iteration count

```
/* You are not expected to understand this */
```

```
while (n++ < max &&  
       x2+y2 < inf) {  
    y = 2*x*y + b;  
    x = x2-y2 + a;  
    y2 = y*y;  
    x2 = x*x;  
}
```

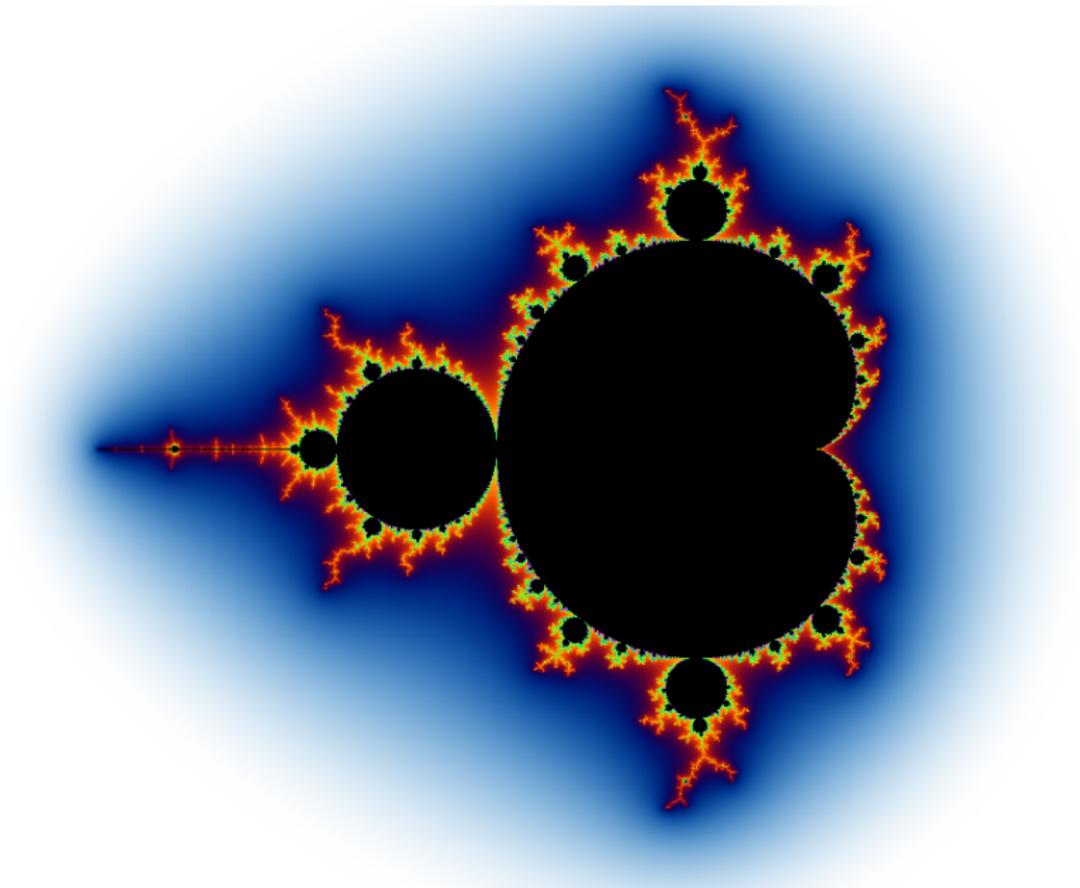
$$z_0 = 0$$

$$z_n = z_{n-1}^2 + c$$

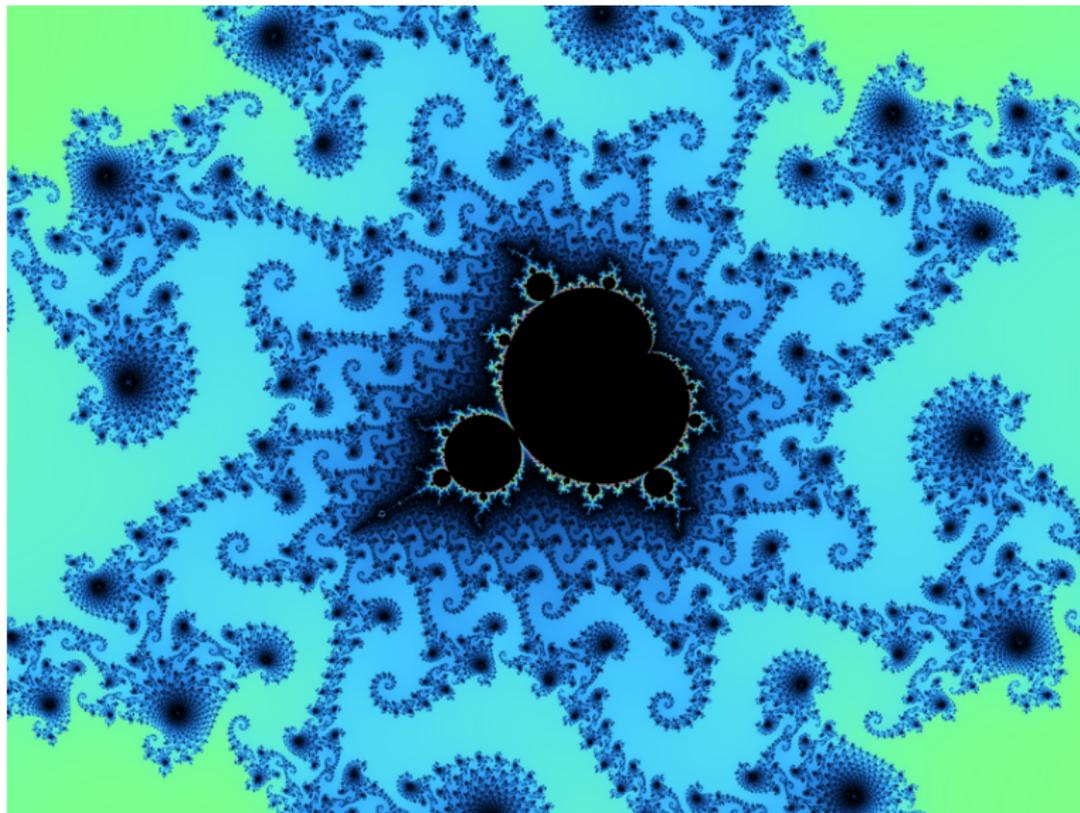
```
nu = n - log(log(x2+y2)/2)  
      / log(2);
```

$$\nu = n - \log_2(\log |z_n|)$$

Log normalized iteration count



Tentacles!



Demo

But this talk is supposed to be about *moving* pictures!

- ▶ Here's what I made ...





- ▶ <http://dotat.at/prog/mandelbrot/>
- ▶ <http://fanf.livejournal.com/>
- ▶ <http://twitter.com/fanf>