

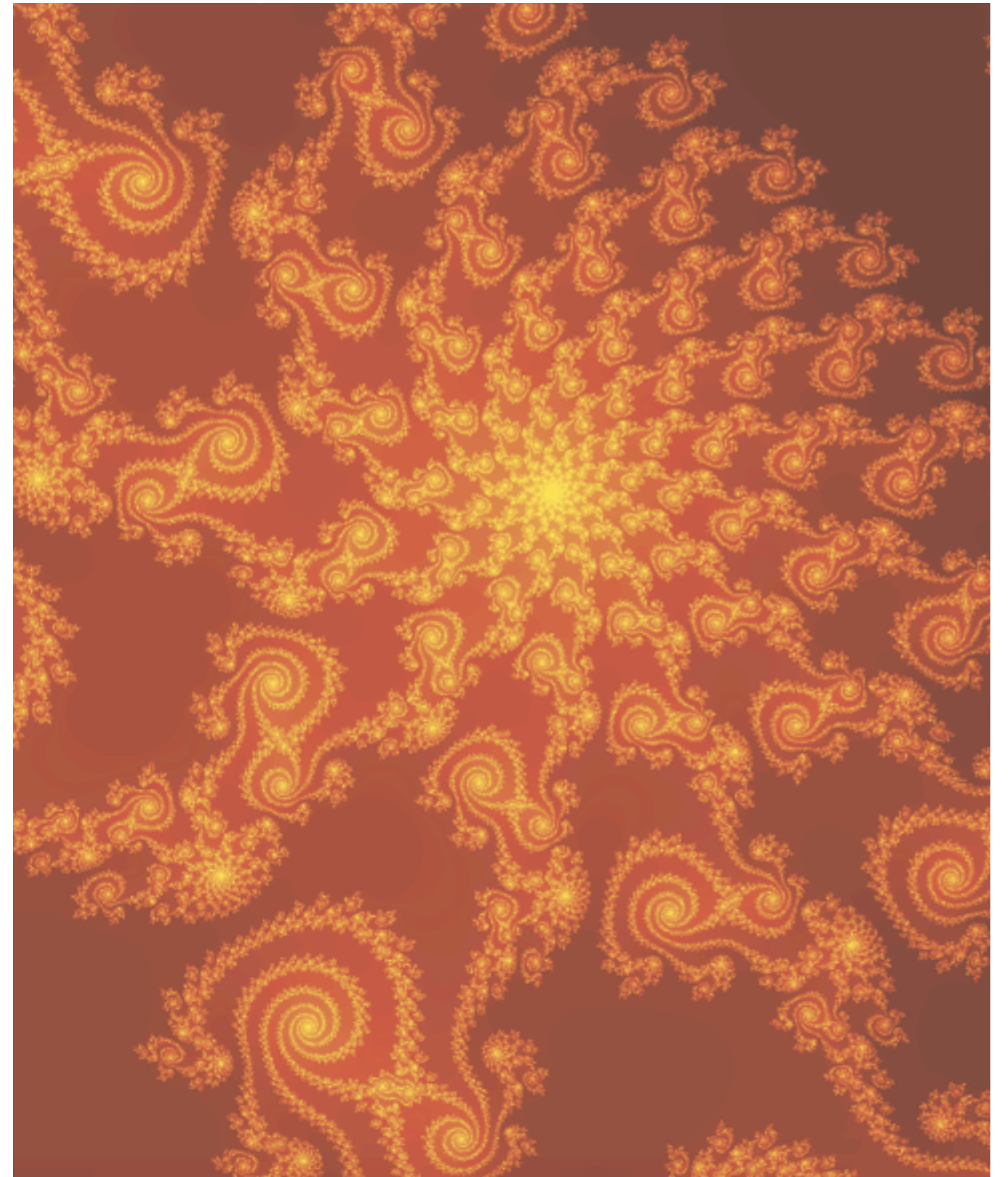
Desain Batik Menggunakan Fractal

Dr. Yeffry Handoko Putra

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Gedung Doktoral

Universitas Komputer Indonesia



Pengertian Disain Fractal

- Desain geometrik dengan detail tak hingga (infinite)
- Merupakan desain menggunakan algoritma matematik
- Dipelopori oleh ahli matematika seperti Leibniz, Cantor, Hausdorff, Koch, Poincaré, Sierpinski dan Weierstrass
- Mulai berkembang oleh Mandelbrot

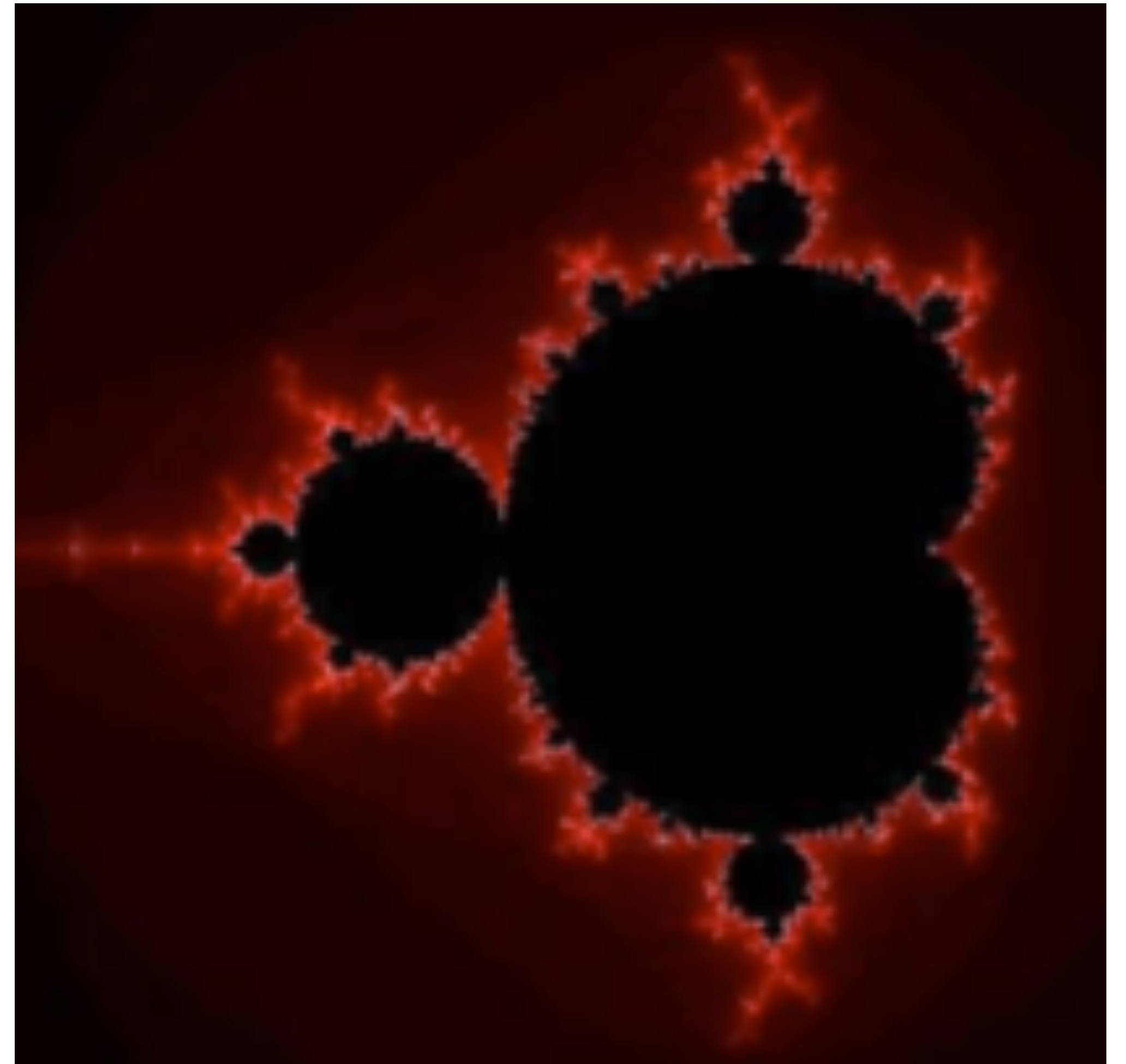


Himpunan Mandelbrot

- semua jenis fractal adalah himpunan Mandelbrot
- Himpunan Mandelbrot adalah bilangan kompleks sebagai berikut:

$$M = \{c \in \mathbb{C} \mid \lim_{n \rightarrow \infty} Z_n \neq 0\}$$

$$\begin{aligned} Z_0 &= c \\ Z_{n+1} &= Z_n^2 + c \end{aligned}$$



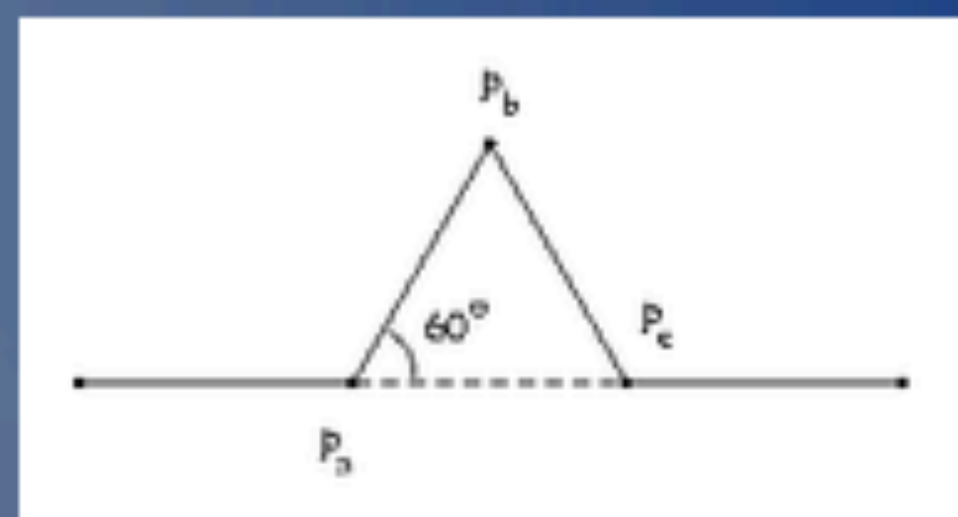
LET US TAKE AN EXAMPLE OF A FRACTAL CONSTRUCTION

The Koch Snowflake



$$\text{Length} = 1$$

After 1
iteration



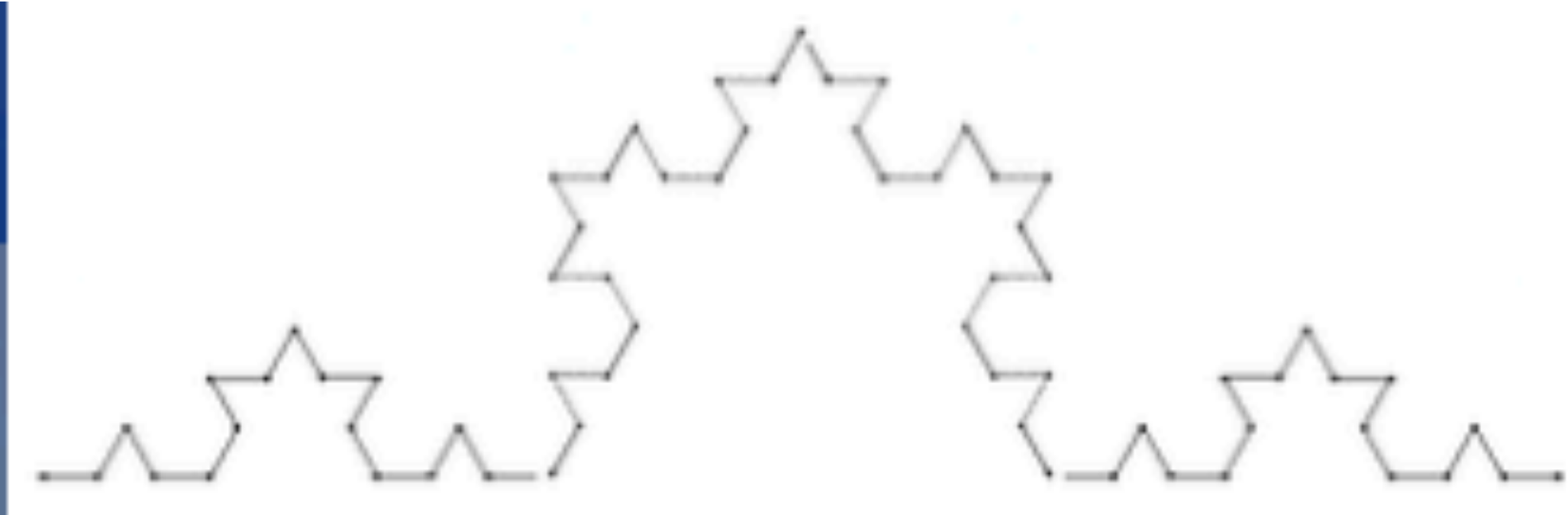
$$\text{Length} = \frac{4}{3}$$

After 2
iterations



$$\text{Length} = \left(\frac{4}{3}\right)^2$$

After
3 iterations



$$\text{Length} = \left(\frac{4}{3}\right)^3$$

After
n iterations



$$\text{Length} = \left(\frac{4}{3}\right)^n$$

After
infinite
iterations



$$\text{Length} = \left(\frac{4}{3}\right)^\infty = \infty$$

❖ Fractals in nature:





Sport Clothing Industries

SUMATERA SPORTS



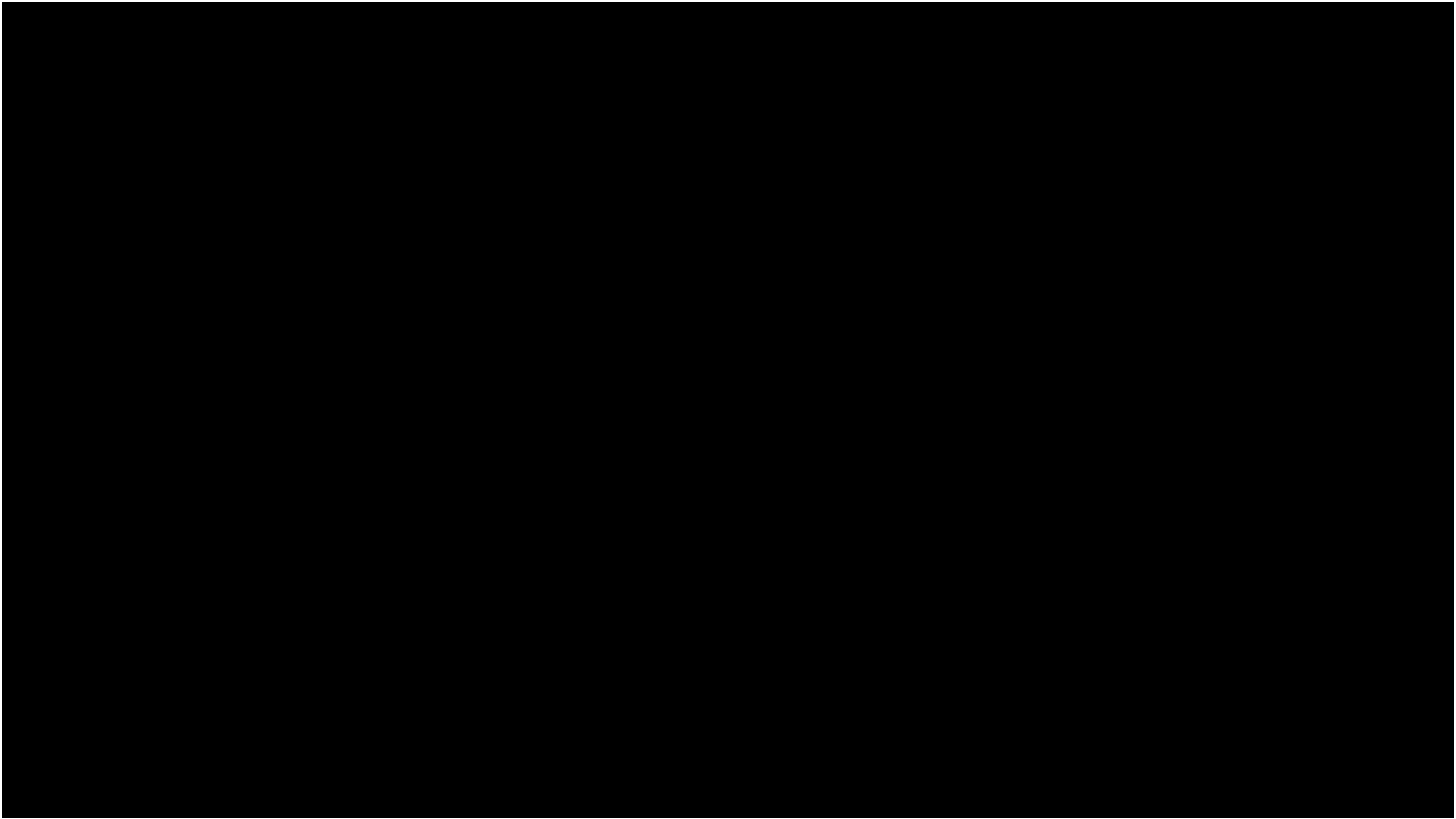


LAUNCHING JBATIK V.2.0, MEI 2009



PLAY JBATIK WITH NINTENDO WII





Demo Ultra Fractal & Scale Fractal (IOS Mac)