

Monofractal

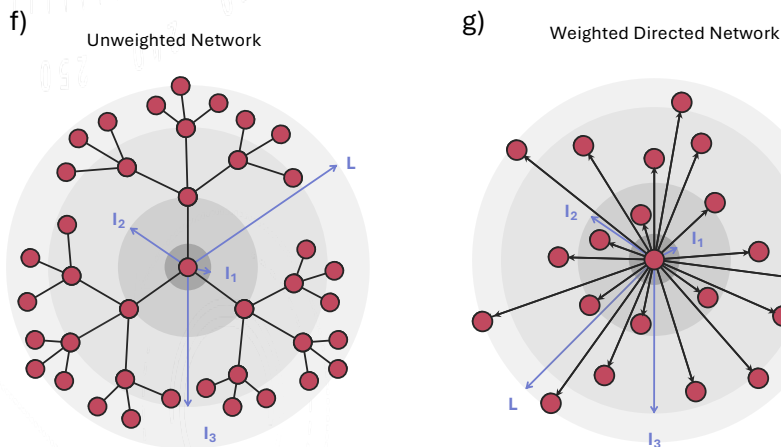
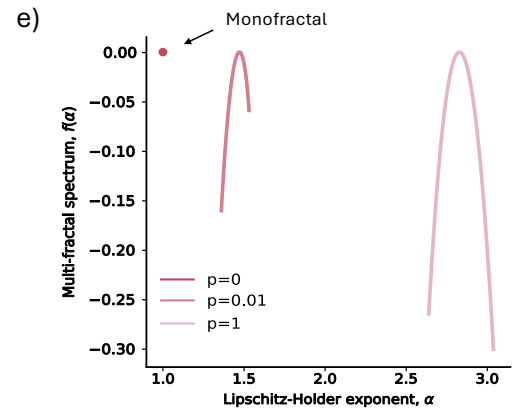
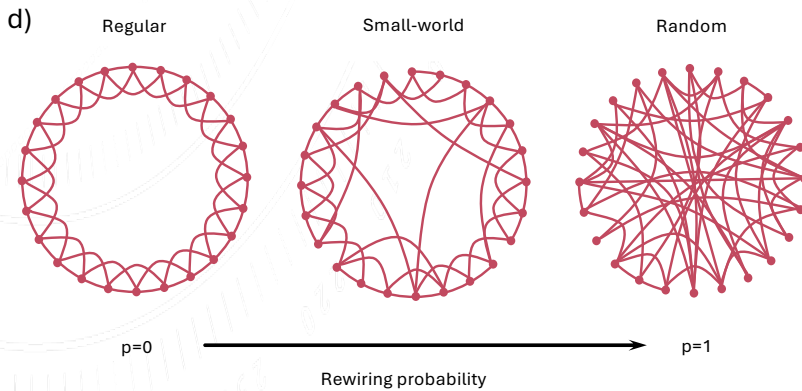
$$\tau(q) = \lim_{1/s \rightarrow 0} \frac{\log \left(\sum_{i=1}^n p_i^q \right)}{\log(1/s)} = \frac{\log \left(2^n \cdot \frac{1}{2^{qn}} \right)}{\log(1/3^n)} = (q-1) \cdot \frac{\log(2)}{\log(3)}$$

$$\alpha(q) = \frac{d\tau(q)}{dq} = \frac{\log(2)}{\log(3)}$$

$$f(\alpha) = q\alpha(q) - \tau(q) = \frac{\log(2)}{\log(3)}$$

Multifractal

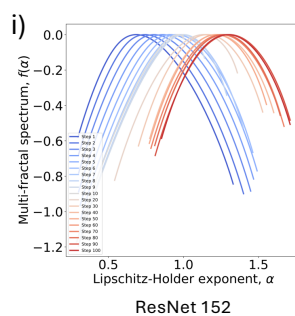
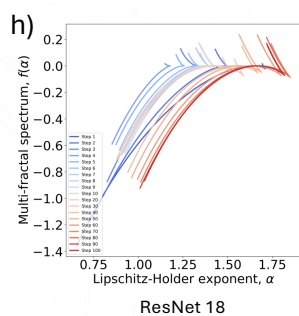
$$\tau(q) = \lim_{1/s \rightarrow 0} \frac{\log \left(\sum_{i=1}^n p_i^q \right)}{\log(1/s)} = \lim_{n \rightarrow \infty} \frac{\log \left(\left(\frac{1}{3} \right)^q + \left(\frac{2}{3} \right)^q \right)}{\log(1/3^n)}$$



$$\tau(q) = \lim_{l/L \rightarrow 0} \frac{\log \sum_{i=0}^n \left(\frac{M_i(l)}{M_0} \right)^q}{\log(l/L)}$$

Concrete Example

Results on CNN



Varying Training Data

