

误差幂律

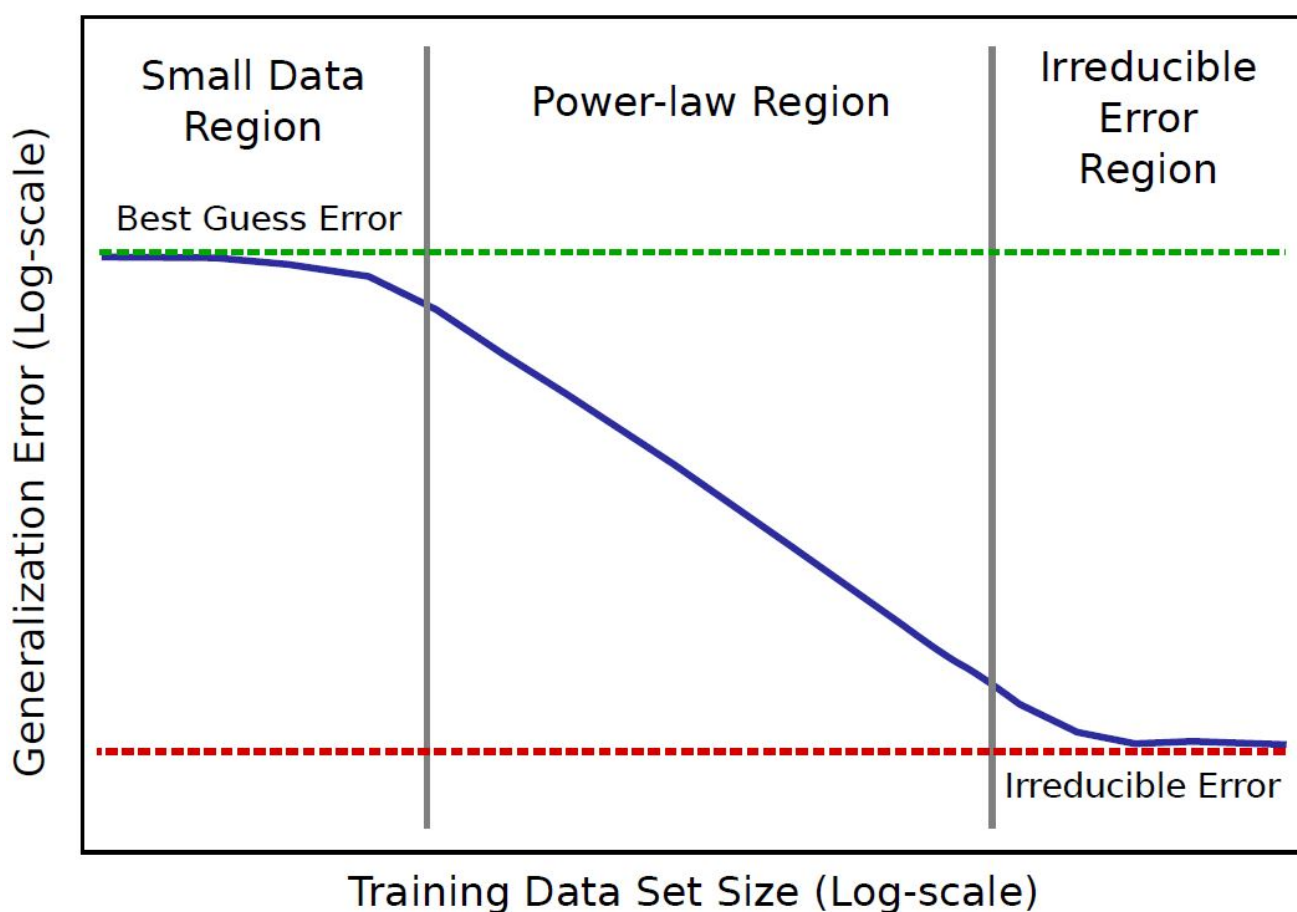
[Hestness, loel, et al. "Deep learning scaling is predictable, empirically." arXiv preprint arXiv:1712.00409 \(2017\).](#)

经验曲线:

$$\text{误差} \propto \text{训练集大小}^{-\beta_g} \quad (0 < \beta_g < 0.5)$$

$$\text{模型大小} \propto \text{训练集大小}^{\beta_p} \quad (0.5 < \beta_p < 1)$$

甚至, 同个问题的不同算法, β_g 的值都十分相似



- aid model and optimization debugging and iteration time, and offer a way to estimate the most impactful next steps to improve model accuracy.
- guide decision-making about whether or how to grow data sets or computation.
- estimate compute requirements and guide system design and expansion