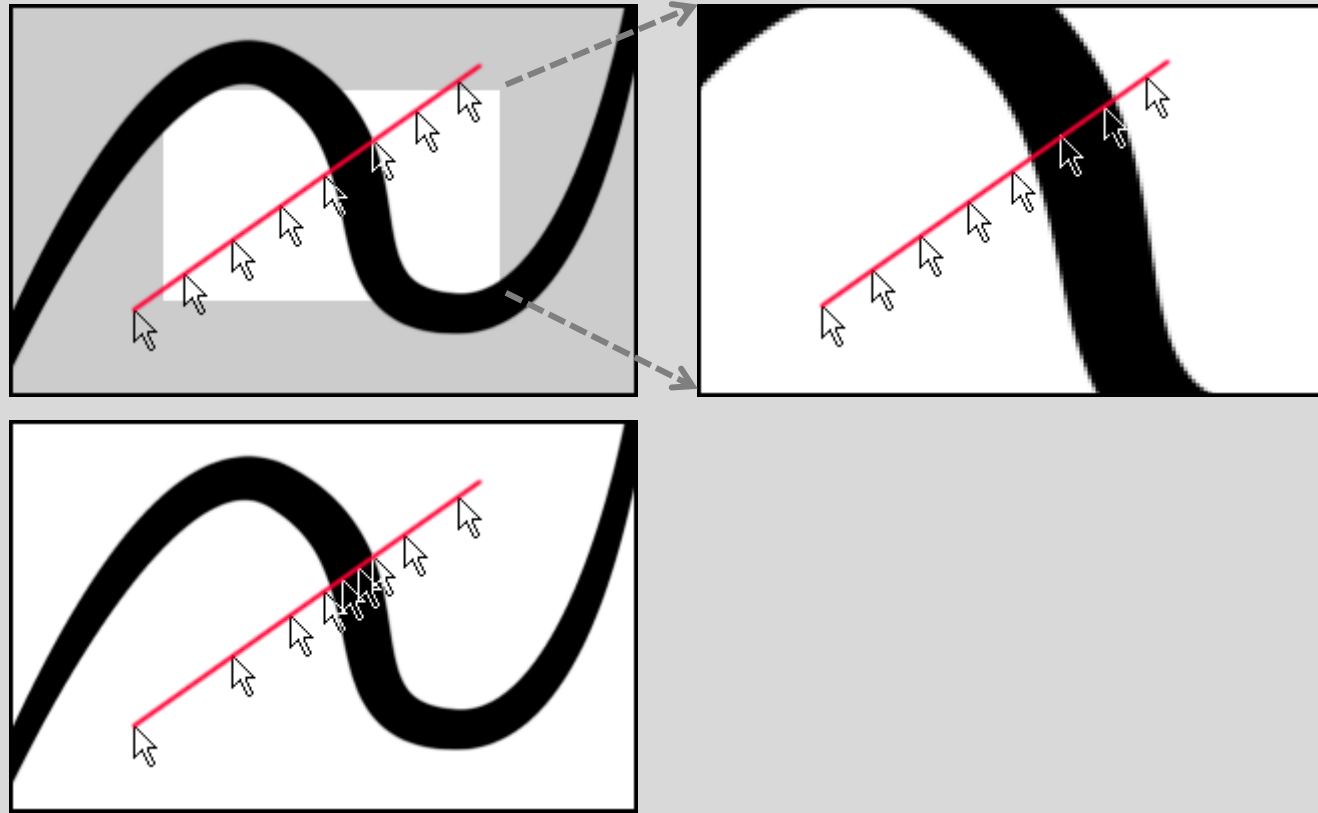# David Mann, Dynamic Control Gain

Gain: ratio of signal output to signal input

Top row: Zooming increases display gain.

Bottom: Dynamic control gain, a **function** of **region importance**.

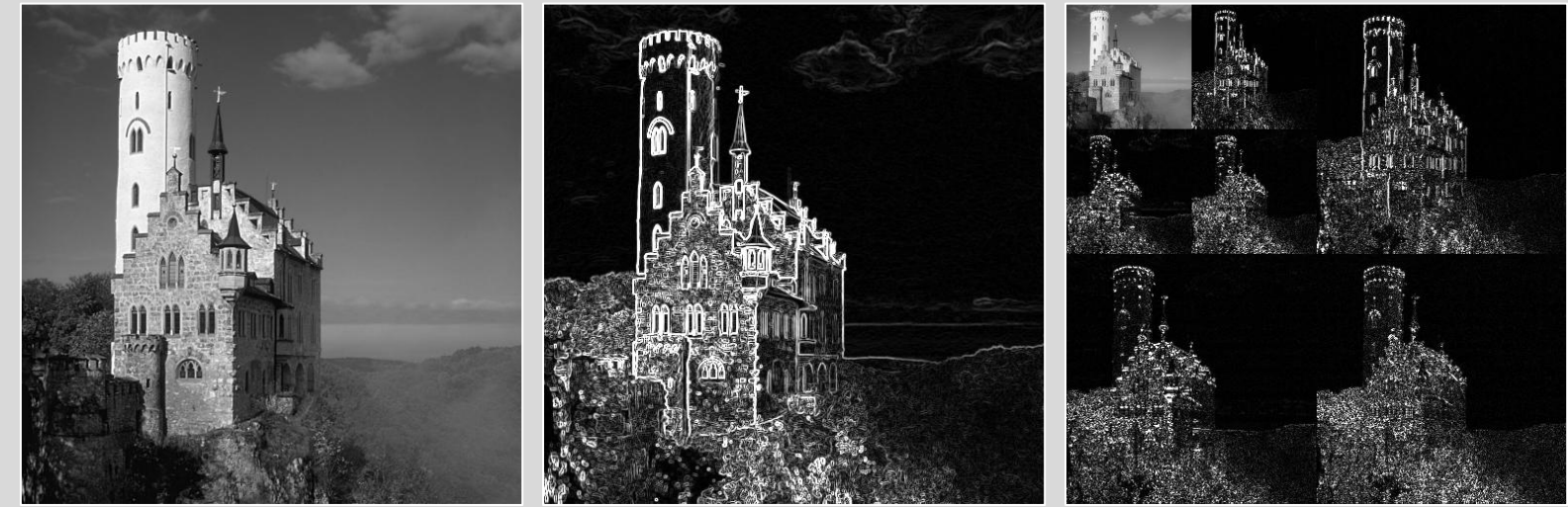**Future work:** Antialiased cursor motion

References:
Guiard99. Navigation as multiscale pointing: extending Fitts' model to very high precision tasks.
Perlin95. Live paint: painting with procedural multiscale textures.
Worden97. Making computers easier for older adults to use: area cursors and sticky icons.

Define region importance?

Top row: Original; Edge; Multi-res. Importance = image frequency.

Bottom row: Proposed sample counting. Importance = edit frequency. Counts are the % of total samples in a region.

$$G(I) = \begin{cases} \dfrac{1}{I}, I < 0.5 \\ 1 - I, I \geq 0.5 \end{cases}$$

$\dfrac{1}{2^k} \leq G \leq 2^k$, where G is the gain, and I is the importance.