

## **Emergent information in the visual environment: the role of fractal dimension in anomalous information acquisition**

### **Results:**

This study aimed to (1) determine if fractal dimension represented a cue which maps onto some basic human desires: a healthy environment, the presence of water, and a sense of spirituality; (2) understand relationships between the fractal dimension of visual scenes, human physiological responses to such scenes and self-reported preference for a visual environment.

Phase 1 showed no significant difference between sites classed as “sacred” vs “secular” and the fractal dimension of the dominant edges in visual images of those sites ( $W=174$ ,  $N=40$ ,  $p=0.25$ ). However, differences for hydrogeological sites were close to significance (shallow vs deep water table:  $W=23$ ,  $N=18$ ,  $p=0.07$ ) and for biodiversity sites were significant (high vs low:  $W=25$ ,  $N=40$ ,  $p=1.34 \times 10^{-7}$ ).

Phase 2 showed a significant negative relationship ( $r = -0.11$ ,  $p = 0.03$ ) between the skin conductance magnitude and the fractal dimension of the dominant visual edge, suggesting that visual complexity relates to our level of arousal upon seeing that site. A relationship between expressed preference and fractal dimension was also supported ( $\rho = 0.61$ ,  $p= 0.03$ ).

In combination, this supports the idea that humans have an inherent ability to recognise and prefer environments that are ecologically healthy. Given the change in physiological arousal, this suggests that visual response during dowsing might be a useful area to be pursued by interested researchers (as depth of water table showed a possible negative correlation to fractal dimension, which showed a negative correlation related to skin conductance response, therefore near-to-surface water should show a relaxation response that could be expressed via ideomotor action).

### **Published works:**

### **Area(s) of interest:**

Visual perception, evolutionary psychology, fractals, dowsing

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