Abstract: I will discuss a notion of visual information as complexity of the raw data, but of the images after the effects of nuisance factors such as viewpoint and illumination are discounted. It is rooted in ideas of J. J. Gibson, and stands in contrast to traditional information as entropy or coding length of the data regardless of its use, and regardless of the nuisance factors affecting it. Its computation is made possible by a recent characterization of the set of images modulo viewpoint and contrast changes, that induce group (invertible) transformations on the domain and range of the image. The non-invertibility of nuisances such as occlusion and quantization induces an ``information gap'' that can only be bridged by controlling the data acquisition process. Measuring visual information entails early vision operations, tailored to the structure of the nuisances so as to be ``lossless'' with respect to visual decision and control tasks (as opposed to data transmission and storage tasks implicit in traditional information theory). I illustrate these ideas on visual exploration, whereby a ``Shannonian Explorer'' navigates unaware of the structure of the physical space surrounding it, while a ``Gibsonian Explorer'' is guided by the topology of the environment, despite measuring only images of it, without performing 3D reconstruction. This operational definition of visual information suggests desirable properties that a visual representation should possess to best accomplish vision-based decision and control tasks.