

In 1969 James J. Gibson and colleagues introduced the importance of accretion and deletion of sampled visual elements over time as reliable foundations for perceiving surfaces ordered in depth (near vs. far), using a spatiotemporal analog of binary random dot stereograms. While that work is foundational for modern perceptual neuroscience, its influence in machine vision has been negligible to date. A computational neural model of human/primate perception of depth order at occluding edges will be described. An algorithm adapted from that model for video streams has promise as a preprocessing step in remote sensing applications. A related algorithm for detection of negative obstacles (steep drops in depth) from video streams for robotics applications will also be described.