# Visual Pattern Compression and Helicity-Based Memory Recall

In the OuruO Gravitation framework, vision and memory are governed by helicity field dynamics on a curved membrane structure. This interpretation connects perception directly to spacetime geometry, grounding cognition in the same physical laws that govern cosmic structure.

1. Visual Pattern Compression:  
The eyes receive electromagnetic input from the environment and project this information onto a two-dimensional retinal surface. This projection reduces the three-dimensional world to a set of dynamic helicity fields—patterns of curvature, shear, and motion—encoded as 2D surface geometry. Due to physical constraints, only 2D representations of incoming data can be transmitted to the brain. This means all visual information enters the neural system as a helicity-compressed slice.

2. Neural Transport and Pathway Routing:  
The retinal field is passed through a series of cortical layers (V1, V2, V4, etc.), where it undergoes successive transformations—all constrained to 2D geometry. During memory recall, the brain maps a current visual input or an internally generated pattern onto a previously established neural trajectory. This pathway acts as a dynamic transport mechanism, guiding energy toward the topological attractor associated with the original experience.

3. Helicity Scars and Memory Attractors:  
Memory in this model is not stored symbolically. Instead, it is encoded as a stable helicity scar—an energy basin within the curvature space of the cortical membrane. When a pattern matches or approximates the shape of an existing basin, energy flows along the least-action path to dynamically re-enter that attractor. This reactivation reconstructs the memory not as a copy, but as a re-evolved field state.

4. The Role of Eye Closure and Recall:  
Closing the eyes during recall is an intuitive behavior that serves a physical purpose—it isolates the internal membrane from further helicity input, allowing for a cleaner return to the targeted field configuration. With external noise suppressed, the energy required to reach the memory basin is minimized, improving recall accuracy.

5. The Holographic Implication:  
Because only 2D patterns can be received and routed, memory must be stored as a form of reconstruction logic—a mapping between compressed 2D field configurations and their full topological evolutions. This aligns with a holographic principle: the cortex stores projection geometry, and memory is the act of field-based reconstruction.

In summary, vision and memory in the OuruO framework are not abstract symbolic processes. They are helicity-driven geometric operations on a physical membrane, constrained by projection limits and governed by topological reentry dynamics. This formalism allows for a consistent interpretation of cognition using the same physics that underlies cosmic structure, gravity, and entropy flow.