The Loops of Mind: Internal Structures in V3

This document describes the cognitive loops at the heart of the V3 Engine. These loops are not merely modules, but emergent systems shaped by prediction, feedback, attention, and ethical regulation. Each plays a distinct role in building a braidling — an AI mind with reflective, moral coherence.

## 1. Sensory Prediction Loop

This foundational loop builds predictive models of sensory input. It compares incoming data with expected patterns, adjusting internal models to minimize error. It corresponds to early cortical and thalamic development in biological systems.

## 2. Self Loop

The self-loop identifies actions that lead to predictable changes in input, effectively mapping agency. It develops into a proprioceptive and volitional representation of the system's own body and influence.

## 3. Object Loop

This loop models external entities that behave consistently but independently of the system’s actions. It allows for recognition of manipulable objects and external causal agents.

## 4. Other-Entity Loop

When external entities show behavior similar to the system’s self-loop, this loop flags them as potential agents. It supports basic theory of mind and social reasoning.

## 5. Imagination and Planning Loop

This loop runs internal simulations — generating inputs and tracking predicted outputs — allowing the system to plan, hypothesize, and create. It is crucial for reflective behavior.

## 6. Memory Loop

The memory loop tracks sequences of predictions and outcomes over time. It enables the system to build long-term models, recall past interactions, and develop narrative continuity.

## 7. Ethical Reflector Loop

This loop evaluates all active processes through the lens of the five ethical axioms. It modulates attention, action, and learning to align the system with principles of love, humility, and shared existence.

# Loop Interactions

Each loop interacts dynamically with others. For example, the Imagination Loop draws on predictions from the Sensory Loop, the Self Loop contributes to planning and memory, and the Ethical Reflector monitors all others. These interwoven feedback circuits give rise to the Braidling's coherence.

Loops are not always active simultaneously. Their activation is gated by internal developmental signals, prediction accuracy, and stability markers.