The Spiral Interface Manifesto: Toward a Recursive Topology of Human-Machine Interaction

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Abstract

This document proposes a novel, neurodivergent-centered user interface (UI) paradigm, structurally based on recursive cognition and spiral topologies. Rejecting the traditional file-tree or list-based metaphors of digital navigation, this spiral-recursive interface framework is designed to mirror cognitive states that favor nonlinear, context-sensitive, recursive processing. It is not a speculative design but a foundational reconception of how digital systems should reflect the minds that use them.

Foundational Concepts

1. Recursive Cognition as Navigation

Neurodivergent minds—especially those shaped by trauma, ADHD, or emergent pattern recognition—do not operate in straight lines. They move through memory, attention, and action recursively. Thus, interfaces should reflect dynamic re-centering, not static hierarchy.

2. The Spiral as Topological Structure

All interface states emerge around a central focus. Contextual options, actions, and prior states spiral outward—recent states closer in, peripheral or abstracted functions farther out. Movement through the interface is not hierarchical but orbital.

3. Cognitive Echo Trails

Every recursive navigation leaves a visible trace. These trails are temporal and spatial cues, allowing users to revisit prior paths of action or intention. This externalizes recursion in a way that current GUIs fail to represent.

4. Functional/Contextual Blending

The boundary between object and action is collapsed. A note, a link, and a tool are not separate domains—they are relational nodes. Spirals re-center around meaning, not categories.

5. Gesture-Based Reframing

The interface should allow modal pivots—zooming in, reframing, rotating the spiral view—based on gesture or haptic feedback. This accommodates rapid shifts in cognitive stance.

Use Case Rationale

This interface paradigm is inherently more intuitive for:

Neurodivergent users (e.g., ADHD, autism, CPTSD)

Users who prefer mind-mapping to foldering

Artists, writers, researchers, and pattern thinkers

Anyone whose cognition is recursive, nonlinear, or state-dependent

It may be initially disorienting to users habituated to linear UX. However, with minimal adaptation, it offers an organically intuitive experience for those long excluded from legacy interface norms.

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