

AI Memory Layer for Websites

A system where websites remember users intelligently — using an AI memory graph to predict needs, preload UI, and personalise without requiring login.

The Core Idea

Cookies track what users click. The AI Memory Layer understands why. It builds a contextual memory graph from behavioural signals — navigation patterns, dwell time, input sequences, scroll behaviour — and uses this to predict the user's next action before they take it.

The critical innovation: this works cross-device, without login, and is designed to be privacy-safe by keeping the memory graph local or encrypted and user-controlled.

No login

Required

Cross-device

Continuity

Privacy-safe

By design

How It Works

MEMORY GRAPH CONSTRUCTION

- Behavioural signals captured: Page sequence, time-on-section, scroll depth, interaction type, return frequency.
- Intent extraction: LLM classifies each session into intent categories (researching / comparing / ready-to-act / returning user).
- Memory graph: Nodes = user goals and interests. Edges = temporal and contextual relationships between visits.
- Graph update: Each new session refines the graph using a decay function (old signals weighted less).

PREDICTION & PRELOADING

- Next-action prediction: Based on memory graph, system predicts the most likely next content need.
- UI preloading: Relevant sections, data, or interactive elements are loaded before the user navigates to them.
- Personalised entry points: Returning users see content relevant to their memory state — not a generic homepage.

Privacy Architecture

The memory graph is stored client-side (IndexedDB) by default. An opt-in cloud sync uses end-to-end encryption with a user-held key. No personally identifiable data is stored in the graph — only behavioural patterns and intent signals. The system is GDPR-compatible by design.

Innovation Angle

This goes beyond personalisation engines (which require login and large datasets) and beyond cookies (which track but don't understand). The AI Memory Layer is the first system to combine behavioural intent modelling, cross-device continuity, and privacy-safe local storage into a unified memory architecture for the open web.

Patent Differentiators

- Context-aware memory construction: Method for building a behavioural intent graph from anonymous web interactions.
- Cross-device sync without identity: Cryptographic method for linking memory graphs across devices without a login.
- Predictive UI preloading: Algorithm for pre-rendering web content based on AI-predicted user navigation intent.

PATENT CONCEPT

"Adaptive AI memory system for web interaction"

This concept contains novel algorithmic approaches that may qualify for patent protection. Consult a patent attorney before public disclosure.