Industrial agent with context-dependent experience reuse

CONCEPTUAL DESIGN EXAMPLE / illustrative records and signals / no experimental results

(a) Process context

Operating context
Regime A · limits · time t

Process sketch

Feed → **Unit**

Observed trends (schematic)



Window → state estimate

Constraints + provenance

(b) Applicability-aware memory

Task-conditioned query
q(t) = task + c(t) + available tools

1 Retrieve
Candidate set C(t)
Semantic similarity

2 Check applicability
Match regime ∧ fresh ∧ within limits
Unknown → request evidence

3 Filter first; rank the admissible candidates

Experience	Relevance	Validity	Decision
E1 · regime A	High	Pass	KEEP
E2 · old rule	High	Expired	BLOCK
E3 · incomplete	Moderate	Unknown	VERIFY

Selected E1 → bounded planning context

(c) Tools & constraints

LLM planner
Task + selected experience

Inspect | **Simulate**

Constraint evaluation
Check tool predictions
Approve / reject / review

Review | **Execute**

(d) Outcome verification and versioned feedback

Observe outcome
Actual response + tool trace

Verify & attribute
Check evidence; attribute errors

Revise experience record
Update conditions / version / evidence link

Solid: task / tool flow | Dashed: blue = observations; green = verified updates; orange = rejected plan