

Cadence: Strategic Guidance for Coding Agents

PRIMARY

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Claims drawn from this source. CLAIM-2026-10-12-01, CLAIM-2026-10-12-02, CLAIM-2026-10-12-03, CLAIM-2026-10-12-04, CLAIM-2026-10-12-05, CLAIM-2026-10-12-06

Front matter

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Argument

Runtime monitors improve LLM-based coding agents by inspecting their execution trajectories and issuing corrective guidance when they detect misbehaviour. The paper's claim is that existing monitors are badly scheduled rather than badly informed: they use either fixed inspection intervals, which miss severe failures while wasting effort on healthy runs, or rigid heuristic rules, which miss complex reasoning errors.

Cadence has two parts. A **two-tier intervention module** issues *advisory* guidance for normal runs and minor lapses, and *replacement-level* guidance for severe misbehaviour. An **inspection scheduler** tightens supervision after replacement-level guidance and relaxes it after advisory-level guidance. The inspection schedule is therefore a function of the run's observed health rather than of step count.

Measured results

Benchmark: 300 SWE-bench Lite tasks. Agents: mini-swe-agent and Moatless.

Resolve rate, mini-swe-agent:

- Cadence 42.33%
- Fixed-Interval k=5 34.00%

- Fixed-Interval $k=3$ 33.33%
- LivePlan 26.67%
- Fixed-Interval $k=7$ 26.33%
- Static Rule-Based 24.00%
- Vanilla (no monitor) 17.00%

Resolve rate, Moatless:

- Cadence 39.67%
- LivePlan 35.33%
- Fixed-Interval $k=3$ 33.00%
- Fixed-Interval $k=7$ 31.00%
- Fixed-Interval $k=5$ 30.67%
- Static Rule-Based 25.67%
- Vanilla (no monitor) 24.00%

The abstract reports the gains over Vanilla as "+25.33%" and "+15.67%". The tables show these as percentage-point differences in resolve rate: $42.33 - 17.00 = 25.33$ and $39.67 - 24.00 = 15.67$. The abstract also states that "Cadence achieves the highest resolve rate among all evaluated monitors."

On Moatless, LivePlan is the strongest baseline at 35.33% and the paper reports its gap to Cadence as **not statistically significant**.

Token cost

Tokens per task:

- mini-swe-agent: Cadence 1.03M, Vanilla 1.42M, LivePlan 1.47M
- Moatless: Cadence 0.48M, Vanilla 0.32M, LivePlan 0.51M

Token leverage, resolved tasks per million tokens: mini-swe-agent Cadence 0.41 against Vanilla 0.12; Moatless Cadence 0.83 against Vanilla 0.75.

The direction of the cost result differs by agent: supervision was cheaper than no supervision on mini-swe-agent and more expensive on Moatless.

Note on the fixed-interval ordering

On mini-swe-agent the fixed-interval results are not monotone in k : $k=5$ (34.00%) is above $k=3$ (33.33%), and $k=7$ (26.33%) is below both. Shortening the interval is therefore not the lever the paper identifies; adapting it is.