META-HARNESS

The Code Around the Model Matters More Than the Model

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Executive Summary

Harness choice creates **6x** performance gaps on identical benchmarks. Stanford's IRIS Lab: Meta-Harness automates harness optimization using **10M** tokens of diagnostic context — 3 orders of magnitude beyond prior optimizers.

Results: TerminalBench-2 **76.4%** (Opus, #2 overall), **37.6%** (Haiku, #1 Haiku). Text classification **+7.7** points with **4x** fewer tokens. Math: **+4.7** points transferring to 5 unseen models.

Metric	Value
Harness performance gap	Up to 6x
Diagnostic context	10M tokens/step
Prior optimizers	2K–22K tokens
TerminalBench-2 (Opus)	76.4% (#2 overall)
TerminalBench-2 (Haiku)	37.6% (#1 Haiku)
Text classification	+7.7 pts (40.9→48.6%)
Token reduction	4x (50.8K→11.4K)
Math transfer	+4.7 pts / 5 unseen models
Convergence speed	0.1x evaluations
Files/iteration (median)	82
Source code reads	41%
Trace reads	40%
Proposer	Claude Code (Opus 4.6)

1. What Is a Harness — and the 6x Gap

Component	What It Is	What It Controls
Model	Neural network weights	Raw reasoning capability
Harness	Code surrounding the model	What info is stored, retrieved, presented
System prompt	Instructions within harness	Behavior, persona, constraints
Context mgmt	Part of harness	What enters window; what is pruned
Tool integration	Part of harness	Which tools called; how results processed
Retrieval logic	Part of harness	What docs fetched; how ranked/filtered
Error handling	Part of harness	Retry logic; fallbacks; circuit breakers

The 6x gap: Same model weights. Same training data. Same benchmark. Different harness. 6x difference in performance. The industry is measuring the wrong variable.

"The model gets the credit. The harness does the work. A 6x gap from harness choice means the code around the model is the highest-leverage optimization surface."

2. Diagnosis Over Compression

Optimizer	Context/Step	Feedback Type	Info Loss
OPRO	~2K tokens	Scalar scores	Extreme
TextGrad	~15K tokens	Textual feedback	High
AlphaEvolve	~22K tokens	Program DB + scores	Moderate
Meta-Harness	~10M tokens	Full logs, traces, source	Minimal

How It Works

Step	Action	Detail
1	Inspect filesystem	Source code, scores, traces of all prior candidates
2	Selective reading	Median 82 files; 41% source, 40% traces
3	Diagnostic reasoning	Traces failures to specific harness decisions
4	Propose modification	New variant addressing diagnosed failure mode
5	Evaluate	Run on search-set; generate scores + traces
6	Store + repeat	Results to filesystem; loop continues

"Traditional optimizers compress feedback and lose the signal. Meta-Harness provides the full record and lets the proposer decide what matters."

3. Three Domains, One Pattern

Text Classification

Metric	Baseline	Meta-Harness	Improvement
Accuracy	40.9%	48.6%	+7.7 points
Context tokens	50.8K	11.4K	4x reduction
Convergence	Baseline	0.1x evals	10x faster
LawBench	Baseline	N/A	+16 points

Math Reasoning (IMO-Level)

Metric	Before	After	Detail
Avg accuracy	34.1%	38.8%	+4.7 points
Models tested	N/A	5 unseen	GPT-5.4-nano through Gemini-3-Flash
Transfer	N/A	Confirmed	Model-portable strategy

TerminalBench-2 (Agentic Coding)

Agent	Pass Rate	Ranking
Meta-Harness + Opus 4.6	76.4%	#2 overall
Terminus-KIRA + Opus 4.6	78.0%	#1 overall
Meta-Harness + Haiku 4.5	37.6%	#1 among Haiku
Baseline Haiku 4.5	Lower	Significantly below

The Haiku result is most strategic: Meta-Harness made the small, cheap model #1. Harness optimization is a substitute for model scale.

"A dollar on harness engineering may outperform a dollar on model scale. Haiku #1 among all Haiku agents proves the point."

4. OECD Context

Factor	Data	Harness Implication
Broadband	98.9% (adv.)	Distributed eval infra ready
Unemployment	5.0% (stable)	Automated optimization more valuable
Agent scaling	1 in 10	Harness quality likely factor in 9/10 failure
Governance	20% mature	Harness-level governance is part of the gap
Model fixation	Industry-wide	Most orgs optimize model, not harness
Harness leverage	Up to 6x	Highest ROI optimization surface
Market CAGR	42.14%	Growing demand for production harnesses

Current Practice	Meta-Harness Implication
Switch models for performance	Harness optimization may yield 6x more improvement
Manual prompt engineering	Automated search finds strategies humans miss
Compressed or ignored feedback	Full diagnostic context enables causal reasoning
Harness = scaffolding	Harness = highest-leverage production artifact
Pass/fail evaluation	Execution traces are raw material for optimization

Transparency note: OECD does not directly measure harness engineering maturity or model-to-harness performance ratios.

5. Practical Actions

1. Treat harness code as first-class optimization. The 6x gap means harness code is the highest-leverage variable. Stop treating it as scaffolding.

2. Invest in execution trace infrastructure. Full traces = raw material for diagnosis. Without them, you cannot optimize.

3. Evaluate harness optimization before model upgrades. Haiku #1 among Haiku: harness > model scale for cost-effectiveness.

4. Benchmark with harness variation. Test same model with different harnesses. If harness variance > model variance, your priority is wrong.

5. Prepare for automated harness optimization. Modular harness code + execution traces + evaluation pipelines = readiness.

Action	Owner	Timeline
Harness code audit	CTO + AI Eng	Q2 2026
Trace infrastructure	CTO + Platform	Q2 2026
Harness vs. model test	AI Lead + Eng	Q2–Q3 2026
Harness-varied benchmarks	AI Lead + QA	Q3 2026
Auto-optimization readiness	CTO + Arch	Q3 2026

What to Watch

- Harness optimization as product category
- Harness-to-model performance ratio in enterprise
- Transfer learning for harnesses across model upgrades

The Bottom Line

6x gap. **10M** tokens. **76.4%** Opus (#2). **37.6%** Haiku (#1). **+7.7** pts classification. **4x** fewer tokens. **+4.7** pts across 5 unseen models. **82** files/iteration.

The industry optimizes models. Stanford optimized the code around the model — and found gains that rival model upgrades. The harness is the highest-leverage optimization surface. Most organizations do not know this.

The model gets the credit. The harness does the work. The next frontier of AI performance is not bigger models — it is better code around the same models. And that code can now optimize itself.

The model gets the credit. The harness does the work.

Thorsten Meyer is an AI strategy advisor who notes that "6x performance gap from harness choice" means most organizations leave 80% of AI potential on the table — and "we need a better model" is usually a misdiagnosis of "we need better code around our model." More at ThorstenMeyerAI.com.

Sources

1. Lee et al. — Meta-Harness (Stanford IRIS)
2. arXiv:2603.28052
3. TerminalBench-2 — 76.4%/37.6%
4. Text Classification — +7.7, 4x
5. Math Transfer — +4.7, 5 Models
6. Context: 10M vs 2K–22K
7. Proposer: 82 Files/Iteration
8. Mordor — $6.96B/$57.42B
9. McKinsey — 1 in 10
10. Deloitte — 20%
11. OECD — 5.0%/11.2%/98.9%