# AI-for-Science Claims, Agent Learning Advances, and Open-Stack Inference Gains

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## AI-for-Science Claims, Agent Learning Advances, and Open-Stack Inference Gains

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This brief covers a high-profile AI-assisted cancer-vaccine case and the skepticism it triggered, new results on continual agent learning and gradient-free search, faster open-source inference tooling, and key product, funding, and compliance developments across the AI market.

### Top Stories

*Why it matters:* This cycle was defined by three practical shifts: AI is moving closer to high-stakes real-world work, agent research is getting more realistic about what actually transfers, and open-source tooling is narrowing the gap with specialized infrastructure.

#### 1) A reported AI-designed cancer vaccine for a dog sparked both excitement and pushback

Posts this cycle circulated an Australian report describing an AI consultant with no biology training using ChatGPT and AlphaFold to design a personalized mRNA cancer vaccine for his rescue dog after sequencing the tumor DNA; multiple posts citing the report said the tumor shrank by about half after treatment [1, 2, 3, 4]. UNSW researchers highlighted the case as striking, with Dr. Kate Michie noting that a non-scientist had been able to do it, and genomics director Martin Smith asking why such approaches are not being rolled out more broadly [1]. Demis Hassabis called it a cool AlphaFold use case and said it was the beginning of digital biology [5].

> "If we can do this for a dog, why aren't we rolling this out to all humans with cancer?" [1]

At the same time, critics warned against turning the episode into an inflated generic AI-cures-cancer narrative [6, 7].

**Impact:** AI biology is producing compelling case studies that expand imagination about personalized medicine, but the reaction also shows that validation and skepticism will matter as much as capability.

### 2) Agent learning results are getting more realistic about what transfers

A new agent-generalization study found that RL fine-tuning produces large gains within the same environment—easy WebShop training improved hard-task performance by 60+ points—but only weak transfer to unseen environments, with average gains of 3.3–3.4 points and one setting dropping WebShop from 28.6 to 10.3 [8]. The same paper found sequential training across five environments could match joint training with minimal forgetting [8]. Separately, XSkill showed that agents can improve over time without parameter updates by accumulating reusable experiences and skills from past trajectories, lifting Gemini-3-Flash success from 33.6% to 40.3% while cutting tool errors from 29.9% to 16.3% [9].

**Impact:** The field is moving away from the idea that RL alone will create broadly capable agents, and toward memory, reuse, and sequential learning.

### 3) Open-source inference is getting faster without a separate runtime tax

PagedAttention, the kernel behind vLLM's speed, now ships natively in Hugging Face Transformers CB, reaching 84% of vLLM throughput on a single GPU with no extra runtime [10]. Hugging Face Transformers also gained FlashAttention 4 support in v5, with reported gains of 3.7x over FA2 and 22–32x lower compile time than FA3 [11, 12].

**Impact:** Performance once associated with specialized serving stacks is moving into mainstream open tooling, reducing integration complexity for teams shipping models.

### 4) AI-for-science continues to attract both capital and new search methods

Mirendil, a startup from former Anthropic researchers, is reportedly raising $175 million at a $1 billion valuation to build systems for long-term scientific reasoning in biology and materials science [13]. On the research side, Sakana AI's open-source ShinkaEvolve combined LLMs with evolutionary search to reach a new state of the art on circle packing in only 150 LLM calls, improve ALE-Bench competitive-programming results, and discover a new MoE load-balancing loss; the work will be presented at ICLR 2026 [14, 15].

**Impact:** AI-for-science is no longer just about answering questions; it is increasingly about automating search over programs, experiments, and reasoning strategies.

### 5) Copyright risk is now delaying model launches

ByteDance delayed the global launch of Seedance 2.0 after copyright complaints from major Hollywood studios including Disney, Warner Bros. Discovery, Paramount Skydance, and Netflix [16, 17]. The company is reportedly strengthening guardrails and moderation systems to prevent AI-generated copyright violations before expanding internationally [16].

**Impact:** For generative media products, rights management and moderation are becoming launch-gating requirements, not post-launch clean-up.

## Research & Innovation

*Why it matters:* The most useful research this cycle focused on making agents retain capabilities over time, improving optimization without standard RL assumptions, and identifying bottlenecks inside current model architectures.

### Continual learning for agents is getting more structured

XSkill separates reusable **experiences** for action-level tool selection from **skills** for task-level planning and workflows, extracting both from successful and failed rollouts via cross-rollout critique and then retrieving them at inference time based on the current visual context [9]. That produced gains across five benchmarks and four backbone models, including the Gemini-3-Flash jump from 33.6% to 40.3% success and a drop in tool errors from 29.9% to 16.3% [9].

For embodied agents, a separate continual-RL recipe for large VLA models combined a pretrained VLA, LoRA, and on-policy RL. The authors say the setup prevents catastrophic forgetting, preserves zero-shot ability, and often beats more complex continual-learning methods [18, 19]. They attribute this to three factors: pretrained VLAs already carrying broad knowledge, LoRA restricting updates to a low-rank subspace, and on-policy RL making gradual policy changes [20, 21, 22, 23].

### Gradient-free and evolutionary methods are gaining traction

Evolution Strategies were highlighted as a gradient-free alternative to RL for post-training: perturb parameters, score the resulting models, and update toward the best-performing directions [24]. Reported results included Countdown improvements to 60.5% on Qwen-2.5-3B versus 32.5% for GRPO, plus large gains on ARC-AGI and Sudoku [24].

ShinkaEvolve pushed the search idea further by using adaptive parent sampling, novelty-based rejection filtering, and a bandit-based LLM ensemble to make pro-

gram evolution more sample-efficient [14]. Beyond circle packing, the framework improved a 5th-place ALE-Bench solution to 2nd place and found a new load-balancing loss for MoE models that improved performance and perplexity [14].

### Two model-level papers worth tracking

- **GLM-OCR:** Z.ai released the technical report for GLM-OCR after the model passed 3 million downloads [25]. The system combines a 0.4B CogViT encoder with a 0.5B GLM decoder, uses multi-token prediction to speed deterministic OCR, and employs a two-stage layout-analysis plus region-recognition pipeline to reach state-of-the-art results in document parsing and table structure recovery [26].
- **Lost in Backpropagation:** A new paper argues the LM head is a structural optimization bottleneck because backpropagating through a rank-D linear layer into a V-dimensional vocabulary suppresses 95–99% of gradient information, degrading learning efficiency across LLM architectures [27].

## Products & Launches

*Why it matters:* Product work is moving beyond chat into workflow-native content generation, broader access, and lower-friction deployment for developers.

### Google turns Workspace into a single-prompt content engine

Google upgraded Gemini for Workspace so it can generate fully formed Docs, Sheets, and Slides by pulling information from Gmail, Drive, and Chat in one step [28]. The update turns Workspace into a single-prompt content creation engine [28].

### Anthropic expands available Claude capacity for builders

Anthropic said it is doubling Claude usage outside peak hours for the next two weeks, covering weekends and weekdays outside 5 a.m.–11 a.m. PT through March 27 [29, 30]. The expanded limits apply across Claude.ai, Cowork, and Claude Code [30].

**Why it matters:** This is a temporary promotion, but it lowers the cost of experimentation for users running heavier coding or research workflows.

### Ollama updates cloud hardware and pricing for agent workflows

Ollama said its cloud now runs Kimi K2.5 and GLM-5 on NVIDIA B300 hardware, with faster throughput, lower latency, and reliable tool calls for integrations [31]. It also highlighted fixed subscription tiers at $0, $20, and $100 to avoid surprise overage bills for workloads like Claude Code or OpenClaw [32].

**Why it matters:** Predictable pricing and better tool-call reliability matter for teams trying to operationalize agents rather than merely demo them.

## Industry Moves

*Why it matters:* The commercial story is broadening from frontier model releases to distribution, AI-native workflow redesign, and capital aimed at domain-specific reasoning.

### Mirendil targets scientific reasoning as a business

Former Anthropic researchers are using Mirendil to pursue long-term scientific reasoning for biology and materials science, backed by a reported $175 million raise at a $1 billion valuation [13]. That places AI-for-science squarely in the venture-backed frontier stack rather than at the edge of research.

### Perplexity keeps adding distribution

Perplexity crossed 100 million cumulative Android app downloads, and the company says a wider Samsung native integration is still ahead [33]. That makes distribution—not just model quality—a more important part of the competitive picture.

### Agent-first operating models are starting to show business results

Box CEO Aaron Levie argued that the big difference is not applying agents to an existing process but redesigning the process from scratch for agents that can write code, use APIs, connect systems, and work through unstructured data [34]. OffDeal says that was its exact bet in investment banking: one banker can run 5–7 concurrent sell-side processes versus a 5–7 person team running one, and the company expects a two-person team to handle 15–20 deals within a year [35]. OffDeal also argues incumbents will not see the same productivity gains by simply adding agent software to legacy workflows [35].

**Why it matters:** The business value may come less from buying a model subscription and more from redesigning work around code-executing agents.

## Policy & Regulation

*Why it matters:* This cycle's policy signals were less about new laws and more about the practical governance issues slowing or shaping deployment: copyright, security, and training norms.

### Copyright complaints are forcing pre-launch guardrails

ByteDance's Seedance 2.0 delay is the clearest example this cycle: copyright complaints from major studios were enough to pause a global release, while

stronger moderation and guardrails are being added before international expansion [16, 17].

### Japan's AI strategy conversations are becoming more sector-specific

Sakana AI founder Ito Ren met former Japanese Prime Minister Kishida Fumio to discuss generative AI, Sakana's work in finance and defense, Japan's possible AI strategy, and the security needs that come with broader deployment [36, 37].

### Open-source training norms remain contested

John Carmack said AI training on his million-plus lines of open-source code magnifies the value of the gift and that he is enthusiastic about it [38]. Teknium echoed the position more directly: everything he puts out should be trained on [39].

**Why it matters:** Even without new regulation, the norms around what AI systems should be allowed to train on remain a live governance question.

## Quick Takes

*Why it matters:* These smaller items help show where the ecosystem is getting more capable, more accessible, or more operational.

- NVIDIA's concept-driven synthetic data pipeline generated 15 million Python programming problems and reportedly improved Nemotron-Nano-v3 by 6 HumanEval points, from 73 to 79, when included in pretraining [40].
- Cursor shared a new method for scoring models on agentic coding tasks, including comparisons of intelligence and efficiency inside Cursor [41].
- Chrome 146 now includes a toggle that exposes the current live browsing session via MCP; the open-source chrome-cdp skill uses that to let coding agents see and interact with live Chrome sessions without a browser automation framework [42, 43, 44].
- A Hermes-based Job Scout agent reportedly fetched 219 real job listings, scored them, researched companies, and generated a CSV tracker after roughly 12 hours from one prompt [45].
- The Hermes Agent hackathon had 72 submissions with just over 24 hours remaining, after Nous increased the prize pool to $7,500 for first place [46, 47].
- OpenAI is expanding Codex meetups globally, with local workshops focused on workflows and shipping projects [48, 49].
- Posts citing infrastructure charts warned about a possible CPU shortage after earlier GPU and memory constraints, pointing to steep growth since December 2025 across compute providers [50, 51, 52].

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**Sources**


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