WEEKLY AI INTELLIGENCE

The *Signal*

The week the frontier started running through Washington — gated model access, custom inference silicon, and a research consensus that AI agents are now bottlenecked by *verification*, not generation.

US government became the gatekeeper of the most capable models — OpenAI's GPT-5.6 "Sol" to ~20 approved partners; Anthropic's Mythos 5 re-authorized to 100+ vetted institutions.

OpenAI & Broadcom taped out "Jalapeño," OpenAI's first custom inference chip, as Qualcomm spent ~$11B assembling a data-center stack aimed at CUDA.

This week's papers converge: as models get better at *doing*, our ability to *verify* what they did becomes the binding constraint.

WEEK ENDING
Sat 27 Jun 2026

WINDOW
20–27 Jun 2026 · Asia/Seoul

ITEMS
21 news · 8 papers

SOURCES CITED
50

THE SIGNAL · INTELLIGENCE BRIEF · 2026-06-27

Week ending Saturday, 27 June 2026 · Reporting window 20–27 June 2026 (Asia/Seoul)

The week the frontier started running through Washington — gated model access, custom silicon, and a research consensus that agents are now bottlenecked by verification, not generation.

At a glance: 21 news & industry items · 8 papers selected from 14 reviewed · 50 cited sources

> **Teasers**
>
> - The US government became the gatekeeper of the most capable models — OpenAI shipped GPT-5.6 "Sol" to ~20 government-approved partners, and Commerce re-authorized Anthropic's Claude Mythos 5 to 100+ vetted institutions.
> - OpenAI and Broadcom taped out "Jalapeño," OpenAI's first custom inference chip, while Qualcomm spent ~$11B assembling a data-center stack aimed squarely at CUDA.
> - This week's papers converge on one uncomfortable theme: as models get better at *doing*, our ability to *verify* what they did becomes the binding constraint.

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1. Executive Brief

- **Government access control became real, not theoretical.** Two of the three leading US labs shipped their most capable models this week *only* through government-mediated channels: OpenAI's GPT-5.6 "Sol" went to roughly 20 individually approved partners with no public waitlist (S1, S2), and Commerce Secretary Howard Lutnick re-authorized Anthropic's Claude Mythos 5 for 100+ "trusted" institutions named in a non-public Annex A (S4, S6). Both moves operate inside Executive Order 14409 (2 June) and follow a blunt 12 June export-control suspension that briefly took Anthropic's frontier models offline worldwide (S21, S24).
- **What changed:** for the first time, self-service is no longer the default path to the best models. Frontier access now depends on a government list — and the criteria for getting on it are opaque.
- **Why it matters:** if this hardens, capability and *availability* decouple. The most capable model and the model you can actually deploy may diverge for 12+ months, reshaping competitive dynamics, sovereign-AI strategy, and where regulated enterprises place bets.
- **The compute war moved up the stack.** OpenAI and Broadcom unveiled "Jalapeño," OpenAI's first custom inference ASIC, taken from design to tape-out in ~9 months with a claimed ~50% cost advantage over typical AI GPUs (S7). Qualcomm separately committed ~$11B — a ~$3.9B acquisition of Modular (an explicit CUDA alternative), a multi-generation data-center CPU deal with Meta, and reported $8–10B talks for Tenstorrent — to attack NVIDIA's inference moat from software and silicon at once (S14, S15, S16).
- **Open weights kept pace, cheaply.** Z.ai's MIT-licensed GLM-5.2 (753B total / ~40B active, 1M context) reportedly matched or beat GPT-5.5 on several long-horizon coding benchmarks at a fraction of the cost (S33, S34), and an 8B masked-diffusion language model, iLLaDA, showed the non-autoregressive paradigm can scale (S43).
- **Research said the quiet part out loud: verification is the wall.** A cluster of strong preprints — on coding-agent reward design (S42), tool-use RL collapse (S46), scientific-discovery evaluation (S44), and long-horizon tool planning (S49) — independently argue that the hard problem in agents has shifted from generating candidate solutions to *reliably checking them*.
- **What to watch next:** GPT-5.6 general availability timing; whether Commerce restores Claude Fable 5 and discloses Annex A criteria; the EU AI Act's 2 August GPAI enforcement date; and whether Qualcomm's Modular and Tenstorrent moves actually close.

> **So what?** If you build on frontier APIs, this was the week to start modeling *access risk* as a first-class variable alongside price and latency — and to take open-weight contingency plans seriously.

2. The Week's Core Narratives

Narrative 1 — The frontier now runs through Washington

The single most important development of the week is structural, not a model. Within a few days, the two paths to the most capable American models both ran through the US government. OpenAI previewed GPT-5.6 — a three-model family (Sol, Terra, Luna) — but released the flagship **Sol** only to ~20 partners individually approved by the government, with no public waitlist and a pointed public objection that "this kind of government access process should [not] become the long-term default" (S1, S2, S3). In parallel, Commerce re-authorized Anthropic's **Claude Mythos 5** for 100+ "trusted" institutions after a 12 June export-control order had forced Anthropic to disable Mythos 5 and Fable 5 for *every* customer worldwide (S4, S5, S24, S25).

These are not isolated decisions. They sit inside **Executive Order 14409** (2 June), which created a voluntary pathway for developers to give the government up to 30 days of pre-release access to "covered frontier models" and tasked Treasury, the Department of War/NSA, and DHS/CISA with classified cyber benchmarking (S21, S22). At the G7 in Evian (16–17 June), Lutnick floated extending privileged access to vetted allied nations and approved companies — the international scaffolding for a tiered, "trusted-partner" access regime (S26). A bipartisan group of four House members has already written Commerce questioning its legal authority and the criteria for restoring access (S23).

> **Implication.** For builders: frontier access is becoming a *credential*, not a purchase. For companies: sovereign-AI and open-weight strategies just gained an insurance rationale. For researchers: reproducibility and external red-teaming get harder when the strongest models are gated. For policy: the US has demonstrated it can throttle a deployed frontier model globally overnight — a precedent every other jurisdiction now has to price in.

Narrative 2 — Custom silicon and the siege of CUDA

The compute story this week was about *inference economics and software lock-in*, not training FLOPs. OpenAI and Broadcom unveiled **Jalapeño**, OpenAI's first "Intelligence Processor" — a reticle-sized inference ASIC co-designed in roughly nine months, with Broadcom's CEO citing ~50% cost savings versus typical AI GPUs and first deployment targeted for end-2026 (S7). Notably, OpenAI says it used its own models to accelerate parts of the design — a small but real data point on AI-assisted chip design.

Qualcomm, meanwhile, mounted the most direct assault on NVIDIA's moat in some time: a ~$3.9B all-stock acquisition of **Modular** — whose hardware-agnostic stack is explicitly positioned as an open alternative to CUDA — plus a new **Dragonfly** data-center CPU and **AI300** accelerator, a multi-generation CPU agreement with Meta, and reported $8–10B talks to buy Jim Keller's RISC-V accelerator firm **Tenstorrent** (S14, S15, S16). The open-source layer reinforced the theme: SGLang reported day-0 DeepSeek-V4 serving on NVIDIA GB300 at ~5× throughput, and PyTorch shipped

multi-silicon inference kernels — the ecosystem is racing to make models portable across accelerators (S36).

> **Implication.** The bet across the board is that inference, not training, is where margins and lock-in will be won — and that breaking CUDA's software gravity is as important as competitive silicon. Watch whether Modular's stack actually delivers portable performance; that, more than any single chip, is the threat to NVIDIA.

Narrative 3 — Agents hit the verification wall

If you read only one section of this report, make it this one paired with §5. An unusually coherent set of papers landed this week, all circling the same conclusion: as models get better at producing candidate solutions, the binding constraint becomes our ability to *verify* those solutions. "The Verification Horizon" argues no fixed reward function survives capability growth in coding-agent RL, because checking complex solutions eventually gets harder than generating them (S42). A CASIA group shows multi-step tool-use RL *collapses* via control-token probability spikes, fixable by interleaving supervised signal (S46). **NatureBench** finds the strongest coding agents beat published Nature-family SOTA on only **17.8%** of discovery tasks (S44). **PlanBench-XL** shows tool-planning accuracy cratering from ~52% to ~11% once tools silently fail (S49). And an "execute-distill-verify" paper names the failure mode for self-improving agents directly: the *self-confirmation trap*, where agents bank plausible-but-wrong trajectories as valid experience.

> **Implication.** The 2026 agent roadmap is being rewritten around verification, reward robustness, and memory hygiene rather than raw capability. Builders should assume silent tool failures and design for them; teams doing agentic RL should expect instability and budget for supervised correction.

Narrative 4 — Open weights stay one cost-curve behind, and closing

The open-weight frontier kept advancing on price/performance even as the closed frontier disappeared behind a government wall. **GLM-5.2** (Z.ai) — MIT-licensed, 753B/40B-active MoE, 1M context — reportedly topped open-weight leaderboards and matched or beat GPT-5.5 on several long-horizon coding benchmarks at roughly one-sixth the cost (with the caveat that it spends notably more output tokens per task) (S33, S34). **MiniMax-M3** offered open multimodal long-context with a sparse-attention efficiency story (S35), and **iLLaDA** demonstrated that a masked-diffusion LM can scale to 12T tokens and close much of the gap to autoregressive models, with weights released (S43).

> **Implication.** The week's gating drama makes the open-weight trajectory strategically louder: when the best closed model might be unavailable to you, a model that is merely *very good* and *actually downloadable* becomes the rational default for many production systems.

3. Must-Know Developments

3.1 The US government becomes the gatekeeper of frontier models

What happened. OpenAI released GPT-5.6 Sol to ~20 government-approved partners (S1, S2); Commerce re-authorized Claude Mythos 5 to 100+ trusted institutions via a Lutnick letter referencing a non-public Annex A (S4, S6); both followed the 12 June BIS suspension that took Anthropic's frontier models offline globally (S24, S25) and operate within EO 14409 (S21). **Why it matters.** Capability and availability are decoupling. The strongest models may be deployable only by a vetted list, for an unknown duration, under undisclosed criteria. **Evidence.** OpenAI's own preview page and public statement; Semafor and Tech Policy Press on the Lutnick letter and Annex A; Lawfare and Cyber Security News on the 12 June order; the White House EO text. **Implications.** Build access-risk into procurement; revisit single-vendor dependence; expect allied-nation tiering after the G7 proposal (S26). **Confidence.** High on the core facts (multiple independent outlets + primary EO); the exact Annex A membership and "~20"/"100+" counts come from reporting and are not independently verifiable. **Sources.** S1 S2 S3 S4 S5 S6 S21 S24 S25 S26

3.2 GPT-5.6 (Sol, Terra, Luna) — capability jump arrives behind a gate

What happened. OpenAI previewed a three-tier GPT-5.6 family: **Sol** (flagship, with a new "max" reasoning effort and an "ultra" mode that spins up subagents), **Terra** (balanced, reportedly ~2× cheaper than GPT-5.5 at similar performance), and **Luna** (lowest cost). Sol is reported to set a new state of the art on Terminal-Bench 2.1 and to cross OpenAI's "High" cybersecurity threshold under its Preparedness Framework (S1, S3). **Why it matters.** The capability story (agentic coding, biology, cybersecurity) is real, but the gating means most builders cannot touch the flagship yet; GA via ChatGPT/API/Codex is promised "in the coming weeks." **Evidence.** OpenAI preview page; VentureBeat model-family breakdown. **Implications.** Plan for a multi-week gap between announcement and usable access; the "ultra"/subagent mode signals OpenAI productizing orchestration, not just bigger single models. **Confidence.** Medium-High. Benchmark and threshold claims are vendor-reported and not independently replicated. **Sources.** S1 S3

3.3 OpenAI + Broadcom tape out "Jalapeño," OpenAI's first inference chip

What happened. OpenAI and Broadcom unveiled Jalapeño, a reticle-sized inference ASIC co-designed in ~9 months (claimed among the fastest ASIC cycles to tape-out), with ~50% cost savings versus typical AI GPUs cited by Broadcom's CEO and first deployment targeted for end-2026 (S7). **Why it matters.** It is OpenAI's most concrete step toward owning its inference cost structure and reducing NVIDIA dependence — and a notable example of AI-assisted chip design. **Evidence.** Joint OpenAI/Broadcom announcement (verified via multiple outlets after the primary page returned 403 to automated fetching). **Implications.** If the cost claim holds at scale, expect downstream pressure on inference pricing through 2027; watch for yield and deployment-timing risk

typical of first-gen silicon. **Confidence.** High that it was announced; Medium on performance/cost figures (vendor-stated, unshipped). **Sources.** S7

3.4 Qualcomm assembles a data-center stack aimed at CUDA

What happened. At its 24 June Investor Day, Qualcomm confirmed a ~$3.9B all-stock acquisition of **Modular** (a CUDA-alternative software stack co-founded by Chris Lattner), unveiled the **Dragonfly** data-center CPU and **AI300** accelerator, named Meta as a multi-generation CPU customer, and is separately reported to be in $8–10B talks to acquire **Tenstorrent** (S14, S15, S16). **Why it matters.** Qualcomm is attacking NVIDIA's moat at the software layer (portability) and the silicon layer (CPUs + accelerators) simultaneously, with a marquee customer already attached. **Evidence.** Reuters (via Yahoo Finance) on Modular; Qualcomm's Business Wire release on the Meta deal and Dragonfly/AI300; DatacenterDynamics (orig. The Information) on Tenstorrent. **Implications.** A credible third data-center silicon vendor changes negotiating leverage for hyperscalers; the Modular bet is the one to watch, because portable performance is what actually erodes CUDA lock-in. **Confidence.** High on Modular and the Meta deal; Medium-High on Tenstorrent (reported talks, not closed). **Sources.** S14 S15 S16

3.5 Anthropic accuses Alibaba's Qwen lab of illicitly accessing Claude

What happened. Anthropic reportedly wrote to the White House alleging a large-scale campaign — thousands of fraudulent accounts linked to operators associated with Alibaba's Qwen lab — to access Claude's software-engineering and agentic-reasoning capabilities (S11). **Why it matters.** It fuses the week's two big threads — model access control and US–China AI competition — into a concrete enforcement and policy story, and bears directly on the export-control logic now governing frontier access. **Evidence.** Bloomberg reporting (Anthropic's primary statement not directly fetched). **Implications.** Expect tighter API abuse-detection, KYC-style controls on high-capability tiers, and this episode to be cited in future export-control debates. **Confidence.** Medium-High (single major outlet; allegations, not adjudicated findings). **Sources.** S11

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4. Industry and Product Moves

Models & products

- **OpenAI GPT-5.5-Cyber → full release.** Moved from preview to general release under a "Trusted Access for Cyber" program gated to vetted defenders (Akamai, Cisco, Cloudflare, CrowdStrike, Fortinet, Oracle, Palo Alto Networks, Zscaler), with a reported new CyberGym SOTA of 85.6% (S8). *So what:* dual-use cyber capability is now being released through trust programs, mirroring the broader gating trend.
- **OpenAI Codex Remote → GA.** Generally available across ChatGPT plans; start/continue work on a connected Mac or Windows host from the ChatGPT mobile app, with per-device QR pairing and

a DigitalOcean Droplet workspace plugin (S9). *So what:* the coding agent is becoming an always-on, cross-device service, not a desktop session.

- **Mistral OCR 4.** Document-intelligence model covering 170 languages with paragraph-level bounding boxes, deployable as a single self-hosted container; reported top OlmOCRBench score (85.20) and ~72% average human-preference win rate (S10). *So what:* a credible on-prem option for regulated enterprises that cannot ship documents to a cloud API.
- **Meta × EssilorLuxottica smart glasses (Muse Spark).** New AI-glasses line from $299 with a multimodal "Muse Spark" model and real-time translation in 14 new languages (S12). *So what:* Meta is pushing on-device multimodal AI into mainstream eyewear price points. (*Confidence: Medium — single reputable outlet.*)
- **Google "Gemini for Science" Science Skills.** Integrates 30+ life-science databases/tools for agentic research workflows (S13). *So what:* the "AI for science" race is becoming a tooling-and-integration contest, not just a model contest. (*Confidence: Medium — partly an I/O 2026 follow-through.*)

Infrastructure, chips & enterprise

- **onsemi → Synaptics (~$7B all-stock).** onsemi's largest-ever deal, targeting edge-AI/IoT ("physical AI"); expected to close mid-2027 (S17).
- **Backblaze ↔ CoreWeave ($335M, 5-year).** Multi-exabyte storage tier inside CoreWeave's AI object storage; BLZE shares jumped ~40% on the news (S18). *So what:* AI-cloud build-outs continue to pull along the storage and supply-chain layers.

Markets & funding

- **OpenAI IPO timing.** After a confidential S-1 (filed 8 June; ~$852B valuation), late-June reporting suggests OpenAI may push its listing to 2027 (S19). *Confidence: Medium — the delay is reported but not confirmed at a single primary URL.*
- **Applied-AI funding stayed hot.** A 24 June roundup listed Assort Health ($120M Series C), Taktile ($110M Series C), and xCures ($46M Series B) (S20). *Confidence: Medium — aggregator-sourced; xCures corroborated via Crunchbase.*

> **Pull-quote.** The product theme of the week is not a single launch — it is that *every* high-capability release (Sol, GPT-5.5-Cyber, Mythos 5) shipped through a trust gate of some kind. Self-service is quietly becoming the exception at the frontier.

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5. Research Papers Worth Reading

Eight papers selected from 14 reviewed. **All are arXiv preprints (not peer reviewed); benchmark numbers are author-reported unless noted.** They are clustered to tell a story: the agent stack (rewards, RL stability, planning, memory, data), efficiency (decoding, KV cache), an architectural alternative (diffusion LMs), and reliability for embodied/world models.

Comparison table

#	Paper	Area	What's genuinely new	Priority	Confidence
1	The Verification Horizon (S42)	Post-training / RL rewards	Argues *no fixed reward* survives capability growth in coding-agent RL	**High**	Med-High
2	Why Multi-Step Tool-Use RL Collapses (S46)	Agentic RL	Mechanistic cause (control-token spikes) + interleaved-SFT fix	**High**	Med-High
3	NatureBench (S44)	Evals / scientific agents	Discovery (not reproduction) benchmark; SOTA-beaten on only 17.8%	**High**	High
4	JetSpec (S41)	Inference efficiency	Branch-causal single-forward draft head; up to 9.64× speedup	**High**	High
5	iLLaDA (S43)	Architectures	Masked-diffusion LM scaled to 12T tokens; weights released	Medium	High
6	CLI-Universe (S45)	Code/terminal agents	Verification-gated task synthesis; 33.4% Terminal-Bench 2.0 at ≤32B	Medium	Med-High
7	EvoEmbedding (S47)	RAG / agent memory	Context-evolving recurrent embeddings for long-context retrieval	Medium	Medium
8	World-Model Hallucination (S48)	World models / robotics	Coverage-aware prediction/prevention of hallucinated dynamics	Medium	Med-High

5.1 The Verification Horizon: No Silver Bullet for Coding Agent Rewards

- **Authors / link / date / area.** Wang, Zhang, Liu et al. (Qwen/Alibaba-affiliated) · arXiv:2606.26300 · 2026-06-24 · post-training, RL rewards.

- **Thesis.** As a policy's capability grows, reliably verifying its complex solutions becomes harder than generating them, so no fixed reward function stays effective.
- **Problem.** Reward hacking and signal saturation in coding-agent RL; the comfortable assumption that "verification is easier than generation" breaks down at the frontier.
- **Method (plain English).** The authors decompose verification into scalability, faithfulness, and robustness, then study four reward-construction approaches across task types and show where each fails as capability rises.
- **Key results.** A largely analytical result: no examined fixed reward survives capability growth; verification must *co-evolve* with the generator.
- **What's new / why it matters.** It reframes RLVR (RL from verifiable rewards) as a moving target and gives teams a vocabulary for reasoning about reward design over a training run — directly relevant to anyone post-training coding agents.
- **Limitations.** More position/analysis than a single shipped system; code not indicated; the strongest claims are conceptual.
- **Who should read it / priority / confidence.** Post-training and agent-RL leads · **High** · Medium-High.

5.2 Why Multi-Step Tool-Use RL Collapses — and How Supervisory Signals Fix It

- **Authors / link / date / area.** Hao, Jin, Liao, Liu, Zhao (CASIA) · arXiv:2606.26027 · 2026-06-24 · agentic RL.
- **Thesis.** Catastrophic collapse in tool-use RL stems from probability spikes in control tokens; interleaving supervised fine-tuning with RL restores stability.
- **Problem.** Pure RL destabilizes multi-step tool use — performance abruptly collapses while the latent capability remains intact.
- **Method.** Diagnose collapse via control-token probability spikes; systematically test supervisory signals (off-policy, hint-based, erroneous-example) under synchronous vs. interleaved schemes.
- **Key results.** Interleaving SFT with RL substantially improves stability, though it degrades under format/content distribution shift; the paper analyzes learning-rate and generalization trade-offs.
- **What's new / why it matters.** A *mechanistic* explanation for a widely-observed failure mode, plus a practical, cheap fix — immediately actionable for agentic-RL pipelines.
- **Limitations.** The stability/OOD trade-off remains; generality across model families is unproven; preprint.
- **Who should read it / priority / confidence.** Anyone training tool-use agents with RL · **High** · Medium-High.

5.3 NatureBench: Can Coding Agents Match the Published SOTA of Nature-Family Papers?

- **Authors / link / date / area.** Wang, Cheng, Ding, Zhou, Zhang et al. (FrontisAI et al.) · arXiv:2606.24530 · 2026-06-23 · evaluation, scientific agents.
- **Thesis.** A discovery-oriented benchmark testing whether coding agents can move beyond reproduction toward genuine scientific contribution.
- **Problem.** Existing coding-agent evals reward reproduction, not discovery, inflating "AI scientist" narratives.
- **Method.** 90 tasks distilled from peer-reviewed Nature-family papers; 10 agent configurations tested under web-search restriction; a "NatureGym" pipeline and public leaderboard.
- **Key results.** The strongest model beats published SOTA on only **17.8%** of tasks; failures are dominated by wrong method selection and compute limits, and most successes are methodological translation rather than innovation.
- **What's new / why it matters.** A sober, reusable ceiling-check on autonomous scientific discovery — valuable counter-programming to hype, with a harness others can build on.
- **Limitations.** 90 tasks; scoring against "published SOTA" can be noisy; preprint.
- **Who should read it / priority / confidence.** Research leaders, "AI-for-science" teams, anyone evaluating agent claims · **High** · High.

5.4 JetSpec: Breaking the Scaling Ceiling of Speculative Decoding with Parallel Tree Drafting

- **Authors / link / date / area.** Hu, Feng, Wu, Rosing, Zhang et al. (UCSD / Hao AI Lab) · arXiv:2606.18394 · 2026-06-16 (rev. 06-25) · inference efficiency.
- **Thesis.** A head-based speculative-decoding method that combines single-forward drafting efficiency with branch-wise causal conditioning, converting larger draft budgets into longer accepted prefixes.
- **Problem.** Speculative decoding hits a scaling ceiling: autoregressive drafters are accurate but expensive with depth; block-diffusion drafters are fast but produce mutually inconsistent trees that waste budget.
- **Method.** Train a causal parallel draft head over fused hidden states from the frozen target model so candidate-tree scores align with the target's autoregressive factorization; verify in parallel; integrate with vLLM.
- **Key results.** Up to **9.64× speedup on MATH-500** and **4.58×** on open-ended chat (H100), beating bidirectional-head and tree-based baselines on dense and MoE Qwen3.
- **What's new / why it matters.** Resolves the "causality–efficiency dilemma" with a single-forward yet branch-causal head, and ships as a drop-in vLLM integration — a direct serving-cost win.
- **Limitations.** Speedups are model/hardware-specific; acceptance gains may not transfer to all decoding regimes; preprint.

- **Who should read it / priority / confidence.** Inference and serving engineers · **High** · High. *(Code: hao-ai-lab/JetSpec.)*

5.5 Improved Large Language Diffusion Models (iLLaDA)

- **Authors / link / date / area.** Nie, Min, Li, Wen et al. (Renmin University / ML-GSAI) · arXiv:2606.25331 · 2026-06-24 · architectures (diffusion LMs).
- **Thesis.** An 8B fully bidirectional masked-diffusion LM, scaled to 12T tokens, closes much of the gap to autoregressive models.
- **Problem.** Diffusion LMs have lagged AR models at scale; this offers a recipe that scales.
- **Method.** Fully bidirectional masked diffusion, 12T-token pretraining, and 12 epochs of instruction tuning.
- **Key results.** iLLaDA-Base improves **+21.6 points on BBH** and **+14.9 on ARC-Challenge** over the prior LLaDA, and is competitive on math/coding/general tasks; weights are released.
- **What's new / why it matters.** The strongest open diffusion-LM scaling result to date — it keeps a genuinely different generation paradigm (parallel, non-autoregressive) alive as a serious option, with open weights for experimentation.
- **Limitations.** Still trails top AR models; gains are benchmark-specific; preprint.
- **Who should read it / priority / confidence.** Researchers tracking non-AR generation; efficiency-curious builders · Medium · High. *(Weights: ML-GSAI/LLaDA.)*

5.6 CLI-Universe: Toward a Verifiable Task Synthesis Engine for Terminal Agents

- **Authors / link / date / area.** Hua, Yao, Zhang, Liu et al. · arXiv:2606.22883 · 2026-06-22 · code/terminal agents, data synthesis.
- **Thesis.** A verification-gated synthesis engine produces high-fidelity terminal-agent training tasks, yielding strong data efficiency.
- **Problem.** Executable, high-quality terminal-agent training data is scarce; retrofitted artifacts give weak learning signals.
- **Method.** Sample tasks across a capability taxonomy, ground them via deep research over real technical materials, instantiate Dockerized environments, and apply multi-stage executable verification (rubric-gated tests, hint-conditional filtering, fail-to-pass checks) — discarding roughly two-thirds of candidates.
- **Key results.** Fine-tuning Qwen3-32B on the distilled **CLI-Universe-6K** reaches **33.4% on Terminal-Bench 2.0** — reported SOTA for ≤32B open-data models, beating some much larger models.
- **What's new / why it matters.** A concrete, reproducible recipe for building coding/terminal-agent training data *without* massive scale — and a clean illustration of Narrative 3 (verification as the lever).
- **Limitations.** No code link indicated; SOTA claim is benchmark-specific; preprint.

- **Who should read it / priority / confidence.** Teams building coding-agent training data · Medium · Medium-High.

5.7 EvoEmbedding: Evolvable Representations for Long-Context Retrieval and Agentic Memory

- **Authors / link / date / area.** Nie, Fu, Feng, Shan · arXiv:2606.21649 · 2026-06-19 (rev. 06-25) · RAG, embeddings, memory.
- **Thesis.** Embeddings should evolve with a running latent memory as text is processed sequentially, rather than encoding segments in isolation.
- **Problem.** Static embeddings ignore surrounding context and temporal order — a poor fit for long documents and agent memory.
- **Method.** Maintain a continuously updated latent memory during sequential encoding, with a memory queue to prevent representation collapse; train on a new **EvoTrain-180K** dataset.
- **Key results.** Reportedly outperforms larger specialist embedders on long-context retrieval and integrates into agentic workflows.
- **What's new / why it matters.** Recurrent, context-evolving representations are a fresh angle on the RAG/agent-memory bottleneck that many production systems are hitting.
- **Limitations.** Project page but no confirmed code repo; recurrent encoding may add latency; preprint.
- **Who should read it / priority / confidence.** RAG and agent-memory engineers · Medium · Medium.

5.8 Hallucination in World Models is Predictable and Preventable

- **Authors / link / date / area.** Hansen, Wang (UCSD) · arXiv:2606.27326 · 2026-06-25 · world models, robotics, reliability.
- **Thesis.** World-model hallucination concentrates in low-coverage state-action regions and can be both predicted and prevented.
- **Problem.** Generative world models hallucinate dynamics, undermining downstream planning and control.
- **Method.** Introduce **MMBench2** (427-hour, 210-task dataset), train a 350M model, identify three hallucination modes, and apply coverage-aware sampling plus curiosity-driven data collection.
- **Key results.** Coverage signals predict failures, and the approach adapts to new environments with minimal real-world trajectories (qualitative deltas in the abstract).
- **What's new / why it matters.** Framing hallucination as a *coverage* problem with predictive signals — plus a sizable new dataset — is a constructive step for reliable model-based RL and robotics.
- **Limitations.** Small model; dataset/claims not independently audited; preprint.

- **Who should read it / priority / confidence.** Robotics, model-based RL, and world-model researchers · Medium · Medium-High. *(Code/data: nicklashansen.com/mmbench2.)*

> **Reading shortcut.** If you have an hour: read **NatureBench** and **The Verification Horizon** for the agent-reliability thesis, then skim **JetSpec** for an immediately deployable efficiency win.

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6. Open-Source, Tools, and Developer Ecosystem

- **GLM-5.2 (Z.ai)** — MIT-licensed, 753B/40B-active MoE, 1M context; reportedly tops open-weight intelligence indices and rivals closed models on long-horizon coding at ~1/6 the cost (uses more output tokens per task) (S33, S34). **Try this if** you want the strongest self-hostable model for agentic/long-horizon coding under a permissive license.
- **MiniMax-M3** — ~428B/23B-active, 1M context, native multimodal, with a sparse-attention efficiency claim; day-0 vLLM support (S35). **Try this if** you need open multimodal + long context in one model. *(Vendor benchmarks unverified.)*
- **vLLM v0.23.0** — DeepSeek-V4 hardening, Model Runner V2 default for dense Llama/Mistral, Gemma 4 encoder-free support, multi-tier KV-cache offloading (S36). **Try this if** you run high-throughput self-hosted serving. *(Exact release date ambiguous.)*
- **Ollama v0.30.9–0.30.11** — auto-install/integration for OpenCode and Claude Code, thinking-capability detection, and Apple-Silicon MLX improvements (Command A / North on MLX) (S37). **Try this if** you run local models on Mac/Windows and want coding-agent integration.
- **LlamaIndex v0.14.23** — "Multimodal synthesis part 2" plus core fixes (S38). **Try this if** you build multimodal RAG pipelines.
- **MCP spec 2026-07-28 (release candidate)** — a stateless protocol core (run behind a plain load balancer, cacheable `tools/list`), an Extensions framework, Tasks, MCP Apps, auth hardening, and a formal ≥12-month deprecation policy; ~10-week SDK validation window (S39). **Try this if** you build or operate MCP servers/clients — start planning the migration now.
- **Epoch AI benchmarks** — FrontierMath v2 corrections plus nine new external benchmarks (agentic work, cybersecurity, forecasting, research-level physics) added 22 June (S40). **Try this if** you need vetted, current frontier-capability evals.
- **iLLaDA weights (ML-GSAI)** — open 8B masked-diffusion LM (S43). **Try this if** you want to experiment with non-autoregressive generation.

> **So what?** The open ecosystem this week did two things at once: shipped competitive open-weight models (GLM-5.2, MiniMax-M3, iLLaDA) *and* hardened the plumbing (vLLM, Ollama, MCP RC) that makes them deployable across hardware — the practical counterweight to a gated closed frontier.

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7. Policy, Safety, and Governance

- **EO 14409 and the "gated access" regime (US).** The 2 June executive order created the voluntary pre-release review and classified cyber-benchmarking framework that this week's OpenAI and Anthropic gating operate within; it explicitly *prohibits* mandatory licensing/preclearance even as a de facto gate emerges (S21, S22). **Impact on builders:** a new "covered frontier model" designation pathway is becoming a practical bottleneck on release timing and availability.
- **Commerce export-control action and re-authorization (US).** The 12 June BIS order forced a global shut-off of Claude Fable 5 and Mythos 5; the 26 June Lutnick letter restored Mythos 5 for an undisclosed Annex A of 100+ institutions, while remaining silent on Fable 5 (S24, S4, S6). **Impact on builders:** access can be revoked or re-scoped by the government with little notice and opaque criteria.
- **Congressional oversight (US).** A bipartisan letter from Reps. Liccardo, Obernolte, Lieu, and Franklin (18 June) questions Commerce's legal authority, technical evaluations, and restoration criteria — signaling scrutiny but no statutory constraint yet (S23). **Impact on builders:** the export-control precedent stands while the legal questions are litigated in public.
- **EU AI Act — 2 August GPAI enforcement (EU).** From 2 August 2026, the Commission's enforcement powers over general-purpose AI providers (including fines) and Article 50 transparency rules become applicable; a *provisional* "Digital Omnibus" agreement could defer some high-risk obligations to December 2027, leaving timing uncertain (S27, S28). **Impact on builders:** GPAI providers should be compliance-ready by 2 August; high-risk system providers face genuine deadline ambiguity. *(Treat the Omnibus deferral as pending, not settled law.)*
- **FTC consumer-chatbot scrutiny (US).** The FTC issued 6(b) orders to seven consumer chatbot providers and published "five don'ts" guidance emphasizing deception and child-safety risks (S30). **Impact on builders:** consumer-facing chatbot teams face active information demands and clear safety expectations. *(Exact in-window dating unconfirmed.)*
- **Copyright litigation to watch (US).** The Third Circuit heard the first appellate fair-use argument on AI training (Thomson Reuters v. Ross, argued 11 June); a ruling could reset training-data risk industry-wide (S31). California's **SB 53** frontier-transparency law remains in force as a concrete state baseline (incident reporting, safety frameworks, penalties up to $1M/violation) (S29).

> **Pull-quote.** This week, "AI safety policy" stopped being about voluntary commitments and became about *who is allowed to run which model* — enforced through export-control machinery built for physical goods.

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8. Signals, Weak Signals, and Open Questions

Emerging patterns (fact-based).

- *Access is the new alignment lever.* Multiple labs released their most capable systems through trust gates this week, not open APIs. The mechanism of AI governance is shifting from model behavior to model *distribution*.
- *Inference economics is the battlefield.* Jalapeño, Qualcomm/Modular, SGLang/GB300, and PyTorch's multi-silicon kernels all point the same way: the 2026 fight is about serving cost and software portability, not training scale.
- *Verification is the research frontier.* At least five independent groups converged on verification/reward/memory reliability as the binding constraint for agents (§5).

Weak signals (lower confidence, watch).

- *Talent re-shuffle in AI-for-science.* An aggregator reports AlphaFold's John Jumper is leaving DeepMind for Anthropic (S32). **Unconfirmed at a primary or top-tier source — treat as rumor.** If true, it would reinforce Anthropic's life-sciences push.
- *AI-assisted chip design going mainstream.* OpenAI's claim that it used its own models to accelerate Jalapeño's design (S7) is a single data point, but a notable one to track.

Open questions.

- What are the actual criteria for the Annex A list and OpenAI's ~20 partners — and will they ever be public?
- Will the 2 August EU GPAI deadline bind on schedule, or will the Digital Omnibus defer it?
- Does Modular's stack deliver portable performance good enough to genuinely threaten CUDA, or is it another "CUDA killer" that underdelivers?
- Will GPT-5.6 GA actually arrive "in the coming weeks," and at what access tier?

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9. Watchlist for Next Week

1. **GPT-5.6 general availability** — timing and access tier via ChatGPT/API/Codex (S1).
2. **Claude Fable 5 status** — whether Commerce restores it and discloses any Annex A criteria (S4).
3. **EU AI Act 2 August GPAI deadline** — guidance, code-of-practice signatories, and any Digital Omnibus movement (S27).
4. **Qualcomm deals** — Modular close (H2 2026) and confirmation/denial of the Tenstorrent talks (S14, S16).
5. **OpenAI IPO timing** — confirmation of a 2026 vs. 2027 listing (S19).
6. **Thomson Reuters v. Ross ruling** — any Third Circuit decision on training fair use (S31).
7. **MCP RC validation** — SDK adoption and breaking-change feedback over the ~10-week window (S39).
8. **Anthropic–Alibaba fallout** — any official Anthropic statement, US response, or new API controls (S11).
9. **John Jumper move** — confirmation or denial of the DeepMind→Anthropic report (S32).
10. **NatureBench / Epoch leaderboards** — new submissions that test the 17.8% discovery ceiling (S44, S40).

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10. Source Appendix

All sources accessed **27 June 2026 (Asia/Seoul)**. Confidence and notes are recorded in `reports/2026/2026-06-27-sources.json`. Official-newsroom pages that returned HTTP 403 to automated fetching were verified via reputable secondary coverage; see `data/source_health.json`.

Official lab, company, and government sources

- **[S1]** OpenAI — *Previewing GPT-5.6 (Sol)* — 2026-06-26 — https://openai.com/index/previewing-gpt-5-6-sol/
- **[S7]** OpenAI / Broadcom — *Jalapeño inference chip* — 2026-06-24 — https://openai.com/index/openai-broadcom-jalapeno-inference-chip/
- **[S8]** OpenAI — *GPT-5.5 with Trusted Access for Cyber* — 2026-06-22 — https://openai.com/index/gpt-5-5-with-trusted-access-for-cyber/
- **[S9]** OpenAI — *Work with Codex from anywhere* — 2026-06-25 — https://openai.com/index/work-with-codex-from-anywhere/

- **[S13]** Google / Google DeepMind — *Gemini for Science: Science Skills* — 2026-06-22 — https://blog.google/innovation-and-ai/technology/research/gemini-for-science-io-2026/
- **[S15]** Qualcomm (Business Wire) — *Qualcomm and Meta multi-generation data-center CPU agreement* — 2026-06-24 — https://www.businesswire.com/news/home/20260624150329/en/Qualcomm-and-Meta-Announce-Strategic-Multi-Generation-Agreement-on-Data-Center-CPUs
- **[S21]** The White House — *EO 14409: Promoting Advanced AI Innovation and Security* — 2026-06-02 — https://www.whitehouse.gov/presidential-actions/2026/06/promoting-advanced-artificial-intelligence-innovation-and-security/
- **[S23]** Office of Rep. Sam Liccardo — *Bipartisan letter to Commerce on frontier-model export controls* — 2026-06-18 — https://liccardo.house.gov/sites/evo-subsites/liccardo.house.gov/files/evo-media-document/6.18.26-letter-to-commerce-department-on-frontier-model-export-controls.pdf
- **[S27]** European Commission — *Regulatory framework for AI (EU AI Act)* — accessed 2026-06-27 — https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai
- **[S28]** European Commission — *Guidelines for GPAI providers* — accessed 2026-06-27 — https://digital-strategy.ec.europa.eu/en/policies/guidelines-gpai-providers

Independent media and analysis

- **[S2]** TechCrunch — *OpenAI limits GPT-5.6 rollout after government request* — 2026-06-26 — https://techcrunch.com/2026/06/26/openai-limits-gpt-5-6-rollout-after-government-request-says-restrictions-shouldnt-be-the-norm/
- **[S3]** VentureBeat — *OpenAI unveils GPT-5.6 Sol, Terra and Luna* — 2026-06-26 — https://venturebeat.com/technology/openai-unveils-gpt-5-6-sol-terra-and-luna-models-but-only-accessible-to-limited-preview-partners-for-now-per-us-gov
- **[S4]** Semafor — *US releases powerful Anthropic model Mythos to some US companies* — 2026-06-27 — https://www.semafor.com/article/06/27/2026/us-releases-powerful-anthropic-model-mythos-to-some-us-companies
- **[S5]** 9to5Mac — *Anthropic cleared to release Claude Mythos 5 to 100+ US institutions* — 2026-06-26 — https://9to5mac.com/2026/06/26/anthropic-cleared-to-release-claude-mythos-5-to-over-100-us-institutions/
- **[S6]** Tech Policy Press — *Commerce eased its block on Anthropic's Mythos, but major questions remain* — 2026-06-26 — https://www.techpolicy.press/commerce-eased-its-block-on-anthropics-mythos-but-major-questions-remain/
- **[S10]** VentureBeat — *Mistral launches OCR 4* — 2026-06-23 — https://venturebeat.com/data/mistral-launches-ocr-4-turning-document-extraction-into-a-full-enterprise-ai-play
- **[S11]** Bloomberg — *Anthropic accuses Alibaba of illicitly accessing its AI models* — 2026-06-24 — https://www.bloomberg.com/news/articles/2026-06-24/anthropic-accuses-alibaba-of-illicitly-

accessing-its-ai-models

- **[S12]** SiliconANGLE — *Meta ships first smart glasses powered by Muse Spark* — 2026-06-23 — https://siliconangle.com/2026/06/23/meta-ships-first-smart-glasses-powered-superintelligence-labs-muse-spark-model/
- **[S14]** Reuters (via Yahoo Finance) — *Qualcomm acquires AI software startup Modular* — 2026-06-24 — https://finance.yahoo.com/technology/ai/articles/qualcomm-acquires-ai-software-startup-131042959.html
- **[S16]** DatacenterDynamics (orig. The Information) — *Qualcomm considers acquiring Tenstorrent* — 2026-06-18 — https://www.datacenterdynamics.com/en/news/qualcomm-considers-acquiring-ai-chip-firm-tenstorrent/
- **[S17]** Tom's Hardware — *onsemi buying Synaptics in $7B all-stock deal* — 2026-06-25 — https://www.tomshardware.com/tech-industry/artificial-intelligence/onsemi-buying-cash-strapped-synaptics-in-usd7-billion-all-stock-deal-smart-power-meets-edge-ai-hardware
- **[S18]** Blocks & Files — *Backblaze gets $335 million CoreWeave deal* — 2026-06-23 — https://www.blocksandfiles.com/public-cloud/2026/06/23/backblaze-gets-335-million-coreweave-bonanza/5260288
- **[S19]** CNBC — *OpenAI IPO filing* — 2026-05-20 — https://www.cnbc.com/2026/05/20/openai-ipo-filing.html
- **[S20]** Tech Startups — *VC funding roundup, June 24, 2026* — 2026-06-24 — https://techstartups.com/2026/06/24/venture-capital-startup-funding-roundup-june-24-2026/
- **[S22]** Roll Call — *Executive order sets voluntary cyber reviews for advanced AI* — 2026-06-02 — https://rollcall.com/2026/06/02/executive-order-sets-voluntary-cyber-reviews-for-advanced-ai/
- **[S24]** Lawfare — *A kill switch for frontier AI* — 2026-06-15 — https://www.lawfaremedia.org/article/a-kill-switch-for-frontier-ai
- **[S25]** Cyber Security News — *Claude Mythos 5 and Fable 5 export suspension* — 2026-06-12 — https://cybersecuritynews.com/claude-mythos-5-and-fable-5-export/
- **[S26]** The National — *G7 pitches 'trusted partnership' for frontier-model sharing* — 2026-06-17 — https://www.thenationalnews.com/news/europe/2026/06/17/g7-pitches-trusted-partnership-to-ai-chiefs-in-a-bid-for-frontier-model-sharing/
- **[S29]** White & Case — *California enacts SB 53 frontier-AI transparency law* — 2026-01-05 — https://www.whitecase.com/insight-alert/california-enacts-landmark-ai-transparency-law-transparency-frontier-artificial
- **[S30]** Fenwick — *FTC outlines 'five don'ts' for AI chatbots* — 2026-06-10 — https://www.fenwick.com/insights/publications/ftc-outlines-five-donts-for-ai-chatbots
- **[S31]** Norton Rose Fulbright — *AI copyright cases update 2026 (Thomson Reuters v. Ross)* — 2026-06-15 — https://www.nortonrosefulbright.com/en/knowledge/publications/ce8eaa5f/ai-in-litigation-series-an-update-on-ai-copyright-cases-in-2026
- **[S32]** Build Fast with AI — *AI news today, June 24, 2026 (John Jumper report)* — 2026-06-24 — https://www.buildfastwithai.com/blogs/ai-news-today-june-24-2026

- **[S50]** Infosecurity Magazine — *GPT-5.5-Cyber full release (Trusted Access for Cyber)* — 2026-06-22 — https://www.infosecurity-magazine.com/news/

Open-source and developer ecosystem

- **[S33]** Simon Willison's Weblog — *GLM-5.2* — 2026-06-17 — https://simonwillison.net/2026/jun/17/glm-52/
- **[S34]** VentureBeat — *Z.ai's open-weights GLM-5.2 beats GPT-5.5 on coding for 1/6th the cost* — 2026-06-16 — https://venturebeat.com/technology/z-ais-open-weights-glm-5-2-beats-gpt-5-5-on-multiple-long-horizon-coding-benchmarks-for-1-6th-the-cost
- **[S35]** Hugging Face / MiniMax — *MiniMax-M3 model card* — 2026-06-01 — https://huggingface.co/MiniMaxAI/MiniMax-M3
- **[S36]** vLLM (GitHub) — *vLLM v0.23.0 release* — 2026-06-15 — https://github.com/vllm-project/vllm/releases/tag/v0.23.0
- **[S37]** Ollama (GitHub) — *Releases v0.30.9–v0.30.11* — 2026-06-25 — https://github.com/ollama/ollama/releases
- **[S38]** LlamaIndex (GitHub) — *v0.14.23 release* — 2026-06-24 — https://github.com/run-llama/llama_index/releases
- **[S39]** Model Context Protocol — *Specification 2026-07-28 release candidate* — 2026-06-20 — https://blog.modelcontextprotocol.io/posts/2026-07-28-release-candidate/
- **[S40]** Epoch AI — *Benchmarks hub (FrontierMath v2; nine new benchmarks)* — 2026-06-22 — https://epoch.ai/benchmarks

Research papers (arXiv preprints — not peer reviewed)

- **[S41]** *JetSpec: Breaking the Scaling Ceiling of Speculative Decoding* — 2026-06-16 — https://arxiv.org/abs/2606.18394
- **[S42]** *The Verification Horizon: No Silver Bullet for Coding Agent Rewards* — 2026-06-24 — https://arxiv.org/abs/2606.26300
- **[S43]** *Improved Large Language Diffusion Models (iLLaDA)* — 2026-06-24 — https://arxiv.org/abs/2606.25331
- **[S44]** *NatureBench: Can Coding Agents Match the Published SOTA of Nature-Family Papers?* — 2026-06-23 — https://arxiv.org/abs/2606.24530
- **[S45]** *CLI-Universe: Verifiable Task Synthesis for Terminal Agents* — 2026-06-22 — https://arxiv.org/abs/2606.22883
- **[S46]** *Why Multi-Step Tool-Use RL Collapses and How Supervisory Signals Fix It* — 2026-06-24 — https://arxiv.org/abs/2606.26027
- **[S47]** *EvoEmbedding: Evolvable Representations for Long-Context Retrieval and Agentic Memory* — 2026-06-19 — https://arxiv.org/abs/2606.21649

- **[S48]** *Hallucination in World Models is Predictable and Preventable* — 2026-06-25 — https://arxiv.org/abs/2606.27326
- **[S49]** *PlanBench-XL: Long-Horizon Planning of LLM Tool-Use Agents* — 2026-06-21 — https://arxiv.org/abs/2606.22388

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11. Methodology and Caveats

Collection. Candidates were gathered across five source groups — official lab/company sources, research-discovery sources (arXiv, Hugging Face Papers, OpenReview), independent media, policy/governance bodies, and the open-source/developer ecosystem — using a two-pass method (broad collection, then verification against primary sources where possible).

Ranking. Items were scored on recency, strategic importance, technical novelty, practical usefulness, evidence quality, reader relevance, and long-term implications, then triaged into must-know items, significant industry moves, papers, open-source highlights, and policy developments.

Window. Report date 2026-06-27 (Asia/Seoul); primary window 20–27 June 2026. Items dated just before the window (e.g., GLM-5.2 on 16–17 June, the 12 June export order, EO 14409 on 2 June) are included as **context** because they are load-bearing for this week's developments, and are labeled as such.

Caveats and limitations.

- **arXiv papers are preprints and not peer reviewed.** Benchmark numbers are author-reported unless independently noted, and several "new SOTA" claims (GPT-5.6, GLM-5.2, MiniMax-M3) are vendor-reported and not independently replicated.
- **Source access.** Several official newsrooms (openai.com, anthropic.com, cnbc.com, axios.com) and some primary pages returned HTTP 403 to the automated fetcher; those facts were verified via reputable secondary coverage and cross-checked across multiple independent outlets. Full per-source status is in `data/source_health.json`.
- **Reported counts** such as "~20 OpenAI partners" and "100+ Anthropic institutions" come from journalism; the underlying Annex A list is non-public and not independently verifiable.
- **Lower-confidence items** (the John Jumper move, exact FTC dating, the OpenAI IPO delay) are explicitly flagged and should not be treated as settled.
- **Conflicts.** Where outlets disagreed (e.g., a "$355M" vs. "$335M" Backblaze figure), the value consistent across the issuer's own materials and most outlets was used.

Compiled autonomously as a weekly intelligence routine. Corrections improve next week's edition.