Open Source 西门子

Beijing · 2026

Oct. 29
Industrial Open Source

Oct. 30
Open Source Robotics

Agenda

VLA & WAM Ecosystem Scan

Initial Insights into the Open-Source Landscape

Yuerong Li
Siemens Ltd., China
Foundational Technologies
Research & Predevelopment
Autonomous Systems & Control
Yuerong.li@siemens.com
2026-10-30

VLA: Vision-Language-Action model
WAM: World Action Model

SIEMENS

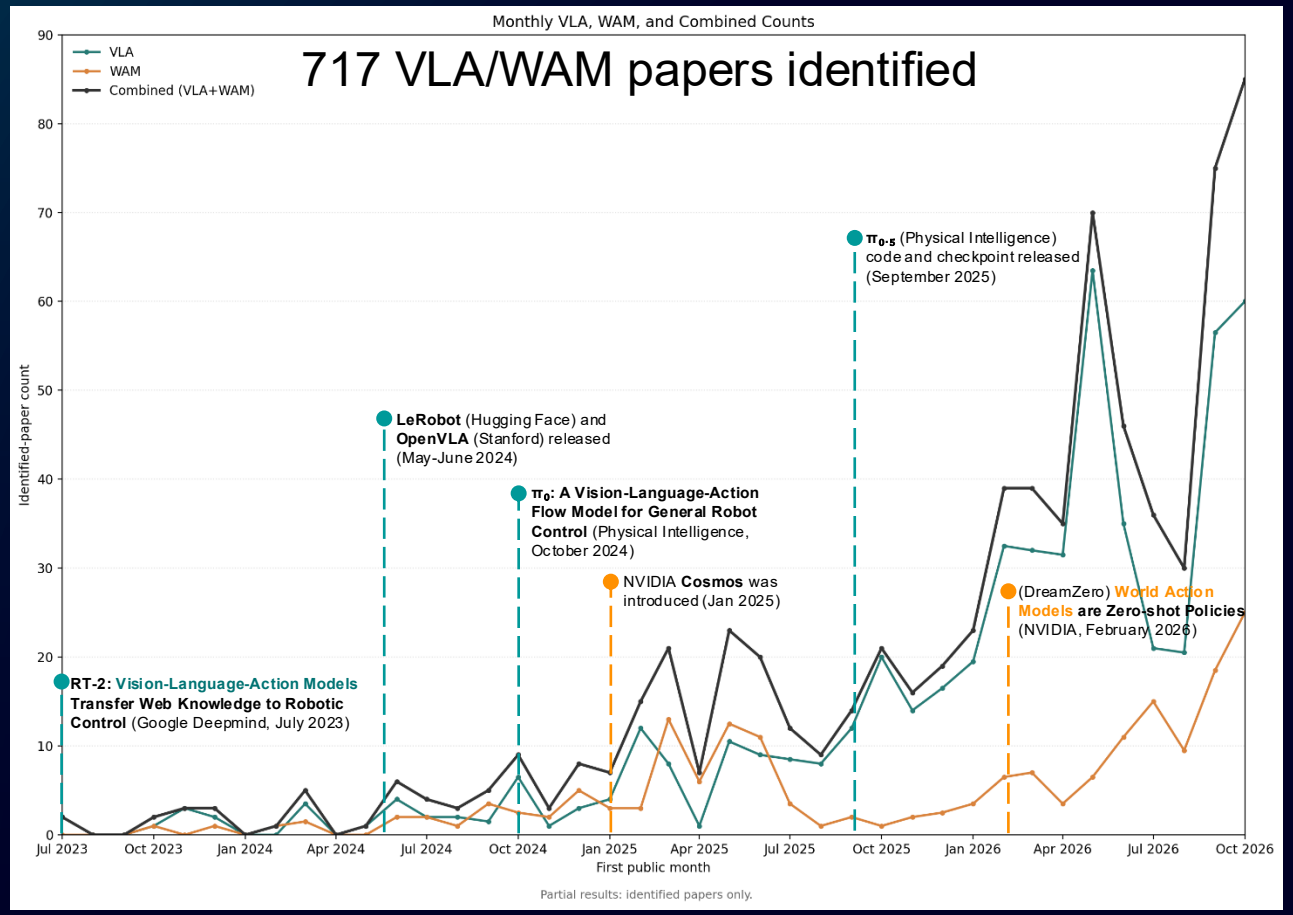
Motivation of this VLA & WAM Ecosystem Scan

Embodied AI is moving from isolated models toward an ecosystem.

- The wider AI ecosystem has seen a rapid increase in open model releases. Of 149 foundation models released in 2023, 65.7% were classified as open source, compared with 44.4% in 2022 and 33.3% in 2021.[1]
- The rapid growth of research on generalist robot models, especially VLA & WAM.
- All the physical AI startups and unicorns
- Increasing data factories and open-source datasets

Potential key factors shaping the publication trend:

- Research breakthroughs and rise of open robotics ecosystems, including:
  - New paradigms
  - Influential publications
  - Open platforms
  - Better foundation models
- Major robotics conference submission cycles:
  - IROS submissions typically peak around **Mar**
  - CoRL submissions are generally due in **May–Jun**
  - ICRA initial submissions typically fall in **Sep–Oct**



[1] Research and Development | The 2025 AI Index Report | Stanford HAI

Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

SIEMENS

Scope and Methodology

A structured, evidence-driven scan with AI assistance and best-effort manual review.

Lead papers → Papers list → Entities list → Artifacts list → Statistics & Charts

- Papers name
- Paper link
- Abstract
- Tags (VLA, WAM)

- From GitHub repos curated lists
- From citation of survey papers
- Ones citing famous VLA & WAM papers
- Key word search
- Semantic Scholar & arXiv

- Authors & First Authors
- Affiliations & Key Affiliations
- Date
- Artifact leads

- Derive from metadata & footnote
- Links in Abstract
- Search abbreviations

- Canonical name
- Related names
- Type (Corp, University)
- Nationalities

- Web search info and canonical links
- Relates institutes, labs, departments
- Link contributions to papers

- Type (code, checkpoint, data)
- Link
- Open-source status
- License

- Check README.md and metadata
- Evaluate status (inference, training, checkpoint, dataset)
- Link artifacts to papers

- Papers
- Open-source
- Entities
- Region
- …

- Linked search based on 3 list
- Statistics analysis and hypothesis validation

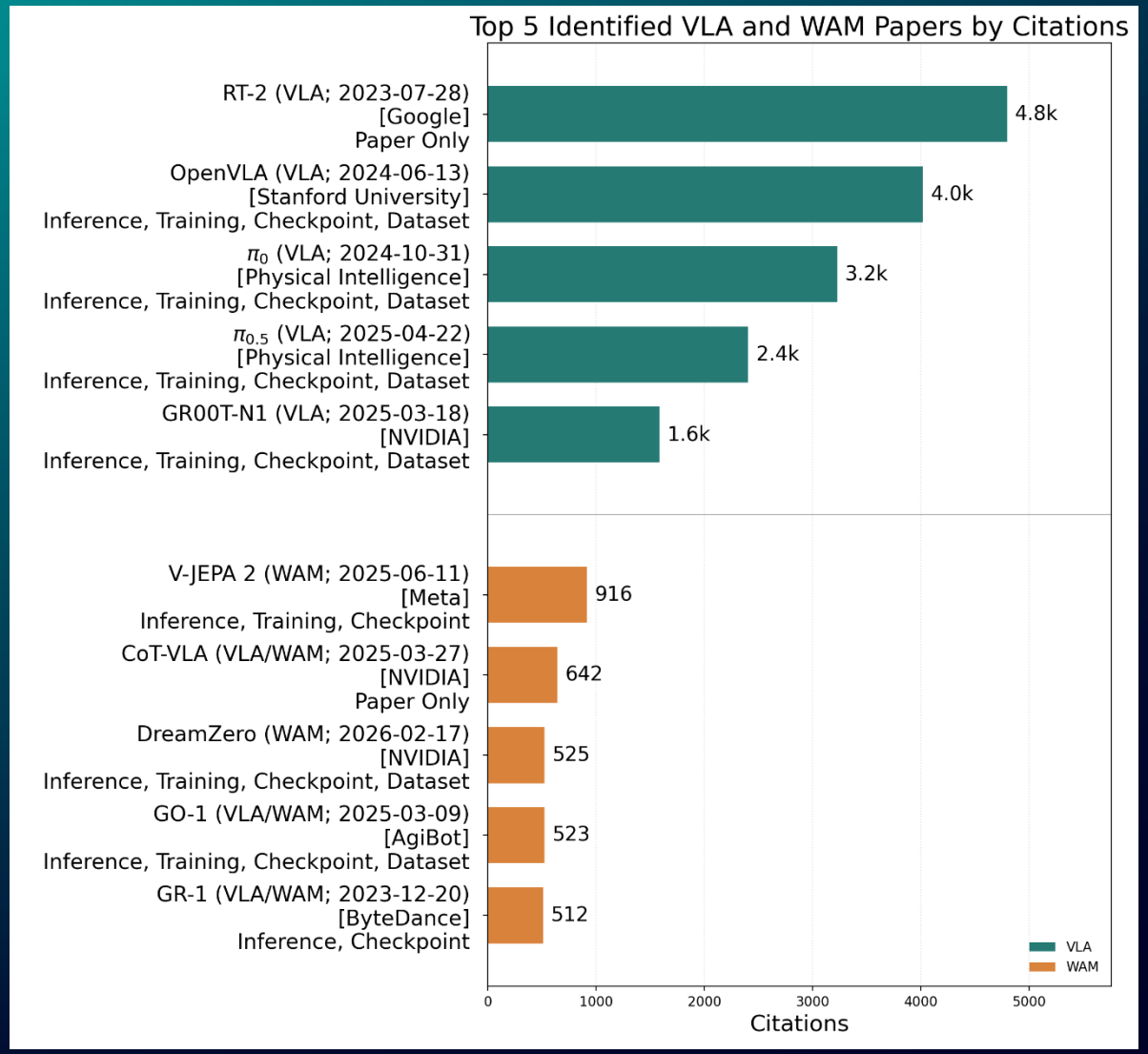
Disclaimer:

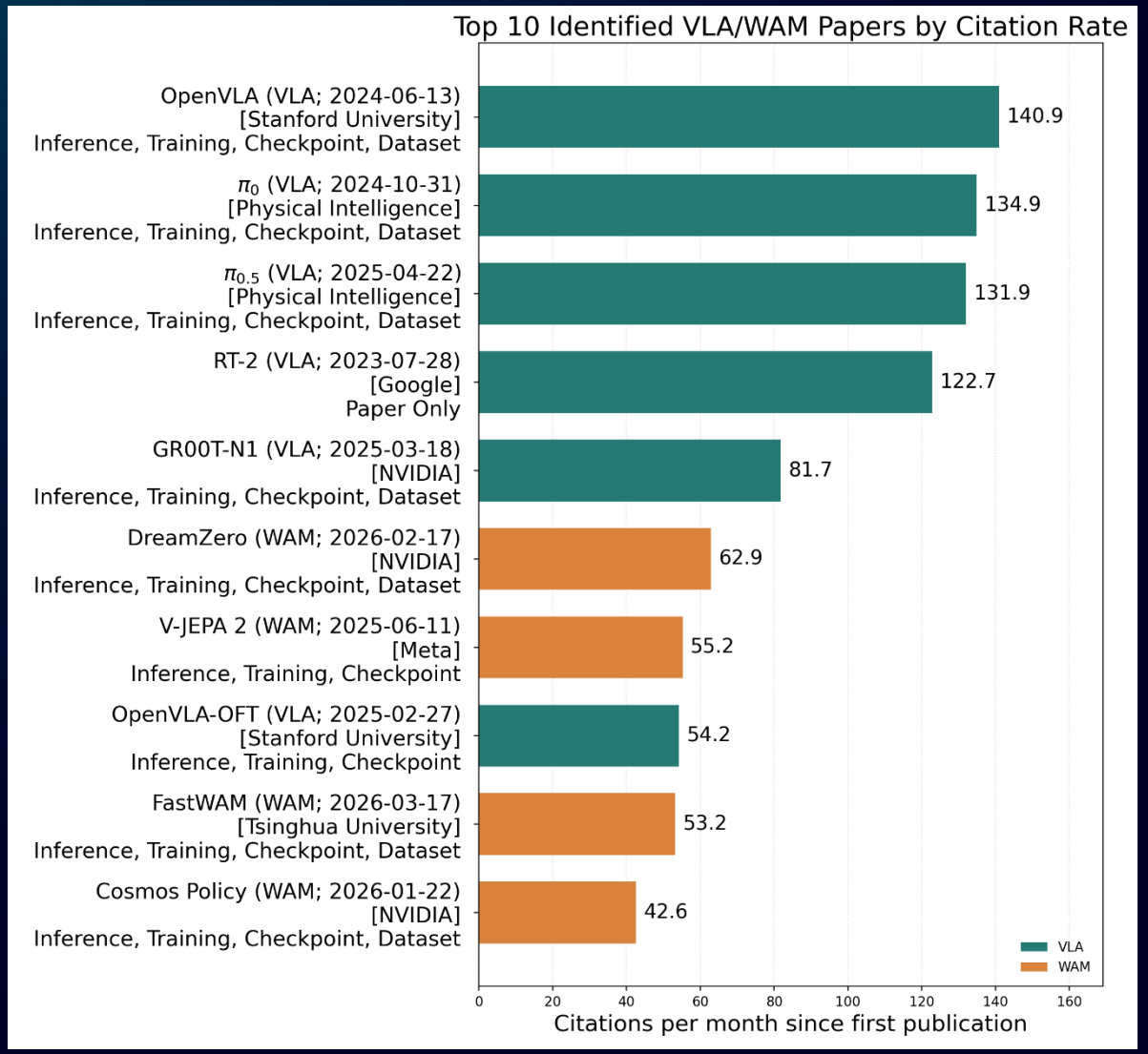
- Best-effort survey; additional relevant papers and artifacts may exist.
- VLA/WAM tags are based on our interpretation and may be subject to classification bias.
- Open-source status is primarily derived from repository metadata and README claims.
- Results are intended to provide directional insights rather than an exhaustive assessment.

Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

The Influential Papers

VLAs established the foundation, while WAMs represent a fast-growing new direction



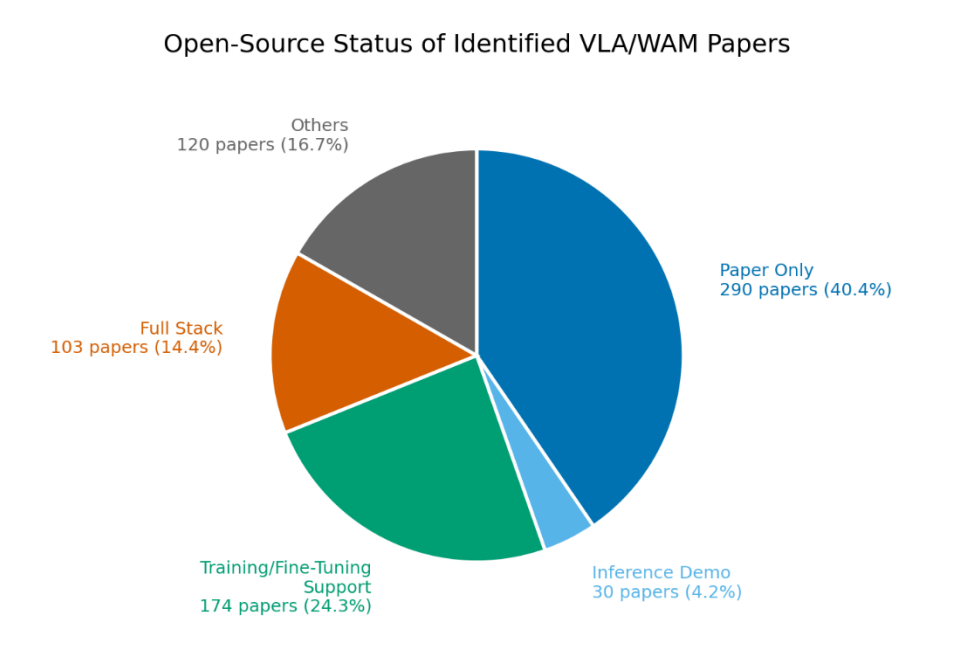


Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

SIEMENS

Open-Source Status of Identified Papers

Open-source adoption is becoming the norm in VLA/WAM research.



- **Paper Only:** No code repositories available, or repository announced as "coming soon" with no actual code artifacts.
- **Inference Demo:** Inference code and weights/checkpoints are available, but training or fine-tuning is not supported out-of-the-box.
- **Training/Fine-Tuning Support:** Instructions or examples for training/fine-tuning are provided, but datasets for reproduction results are missing, or licensing terms remain unclear.
- **Full Stack:** Complete open-source release including training code, weights, inference scripts, and some reproduction datasets under a clear license.
- **Others:** Third-party community implementations only, incomplete information, or ambiguous repository status.

- Out of 481 GitHub repos identified, 150 (31.2%) have MIT license, 148 (30.8%) have Apache-2.0, 160 (33.3%) repo license status cannot be missing or ambiguous, and 23 (4.8%) repos have various other licenses.
- While more 40% of VLA/WAM papers release code beyond the publication, only 14.4% provide a full-stack open-source package.

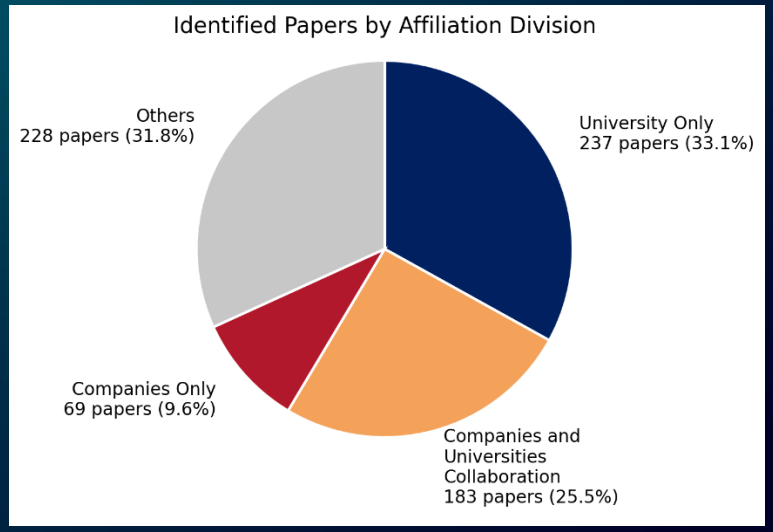
Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC
SIEMENS

Primary Drivers Behind Open Source

Industry leads in open-sourcing Robot Foundation Models

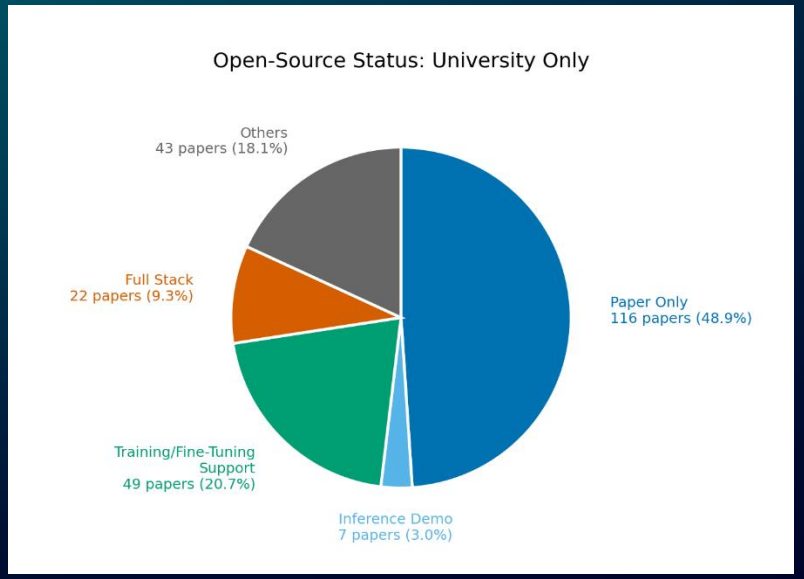
Universities

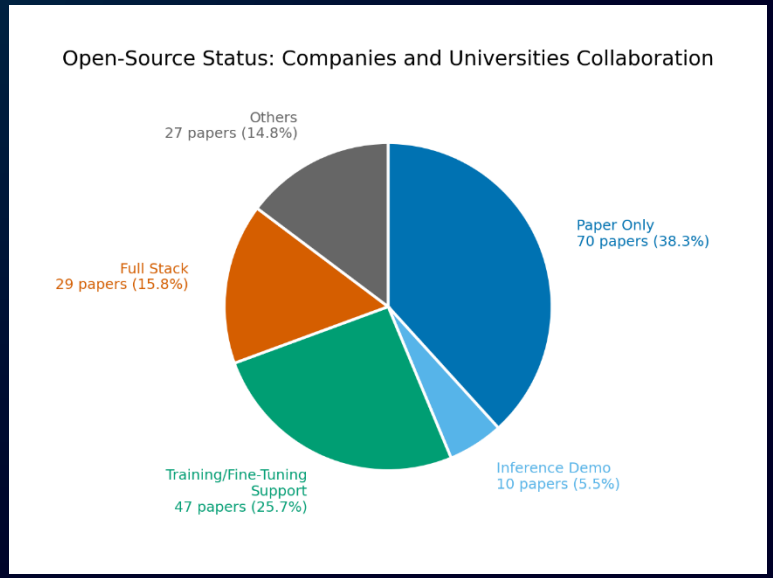
- Reproducibility and scientific credibility
- Citation and visibility
- Talent attraction
- Funding and public-good obligations
- Establishing benchmarks
- Shared infrastructure
- Community validation

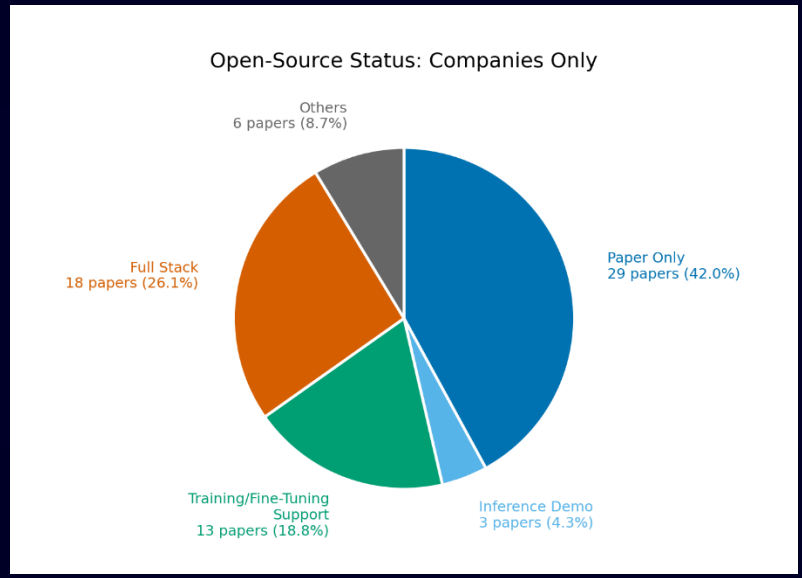


Companies

- Reputation and recruiting
- Hardware pull-through
- Standard setting
- Ecosystem formation
- External R&D leverage
- Precompetitive collaboration







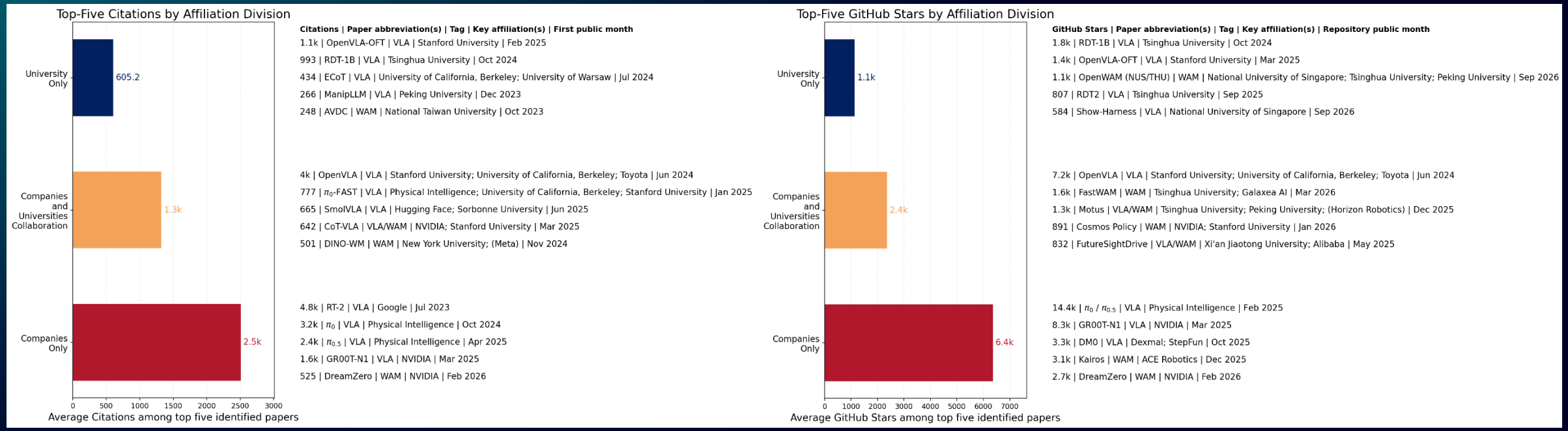
Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

SIEMENS

Top-Performing VLA/WAM Works

The most influential VLA/WAM papers are predominantly industry-led

- Nearly 90% of notable AI models in 2024 originated from industry, whereas academia remained the leading institutional source of highly cited AI research.[1]
- Both citation impact and GitHub adoption increase consistently from university-only → university-company collaborations → company-only, suggesting that deeper industry involvement is associated with greater scientific visibility and open-source traction.
- LeRobot (~28.6k GitHub stars), coordinated by Hugging Face and supported by a broad open-source robotics community, surpasses all groups shown here.

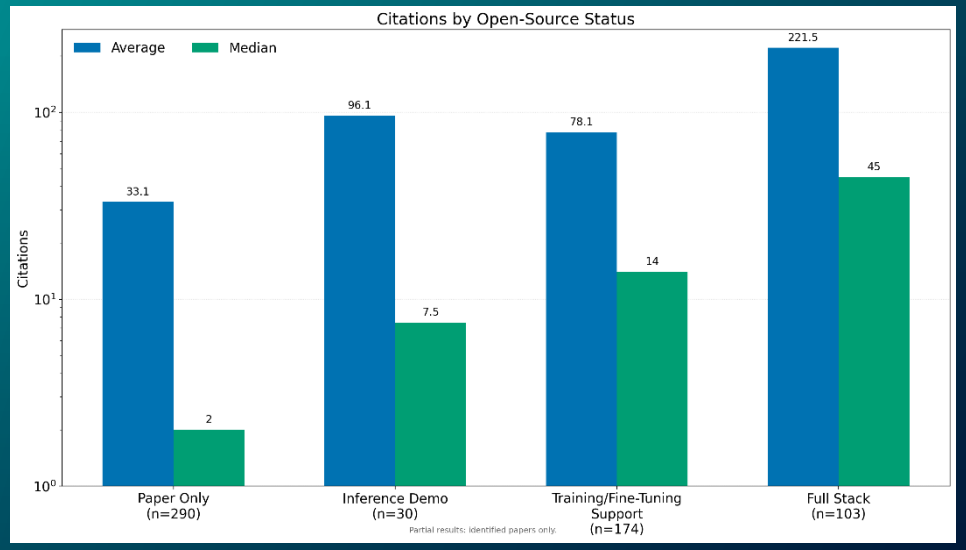


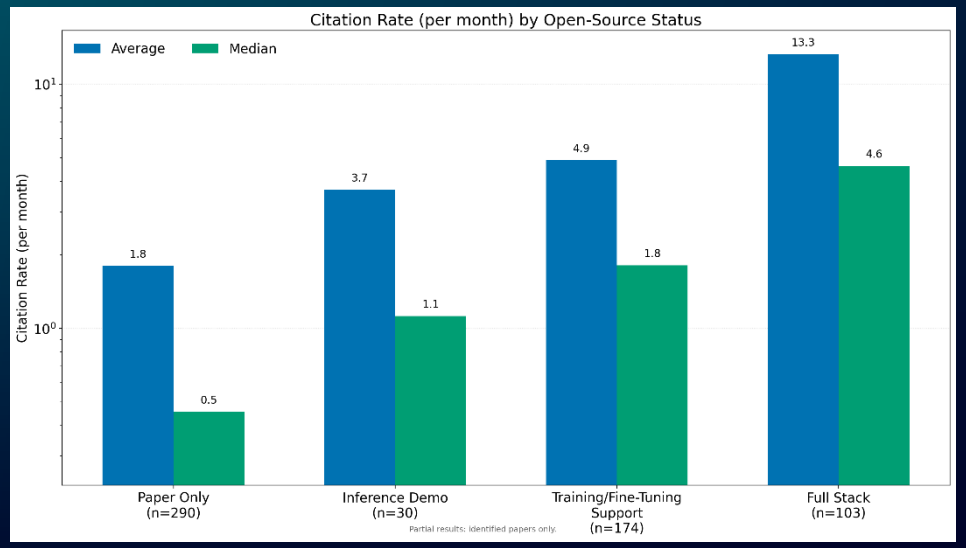
[1] Research and Development | The 2025 AI Index Report | Stanford HAI

SIEMENS

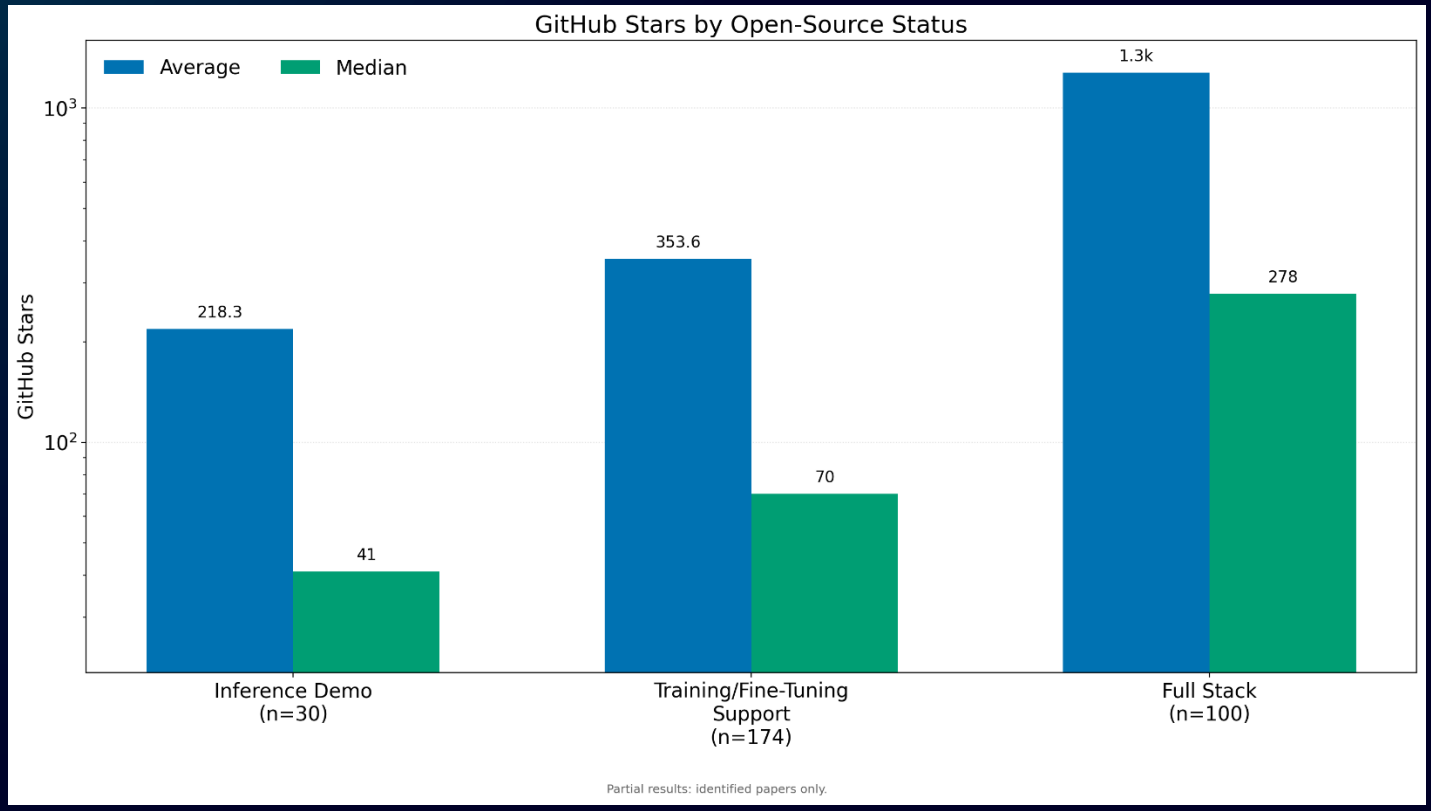
Open-Source Status Impact

The more complete the open-source release, the higher the scientific impact and community adoption.





- From paper-only to full-stack releases, median citations rise from 2 to 45 and median citation rates from 0.5 to 4.6 citations/month, while median GitHub stars increase from 41 to 278, indicating a strong association between artifact completeness and visibility.

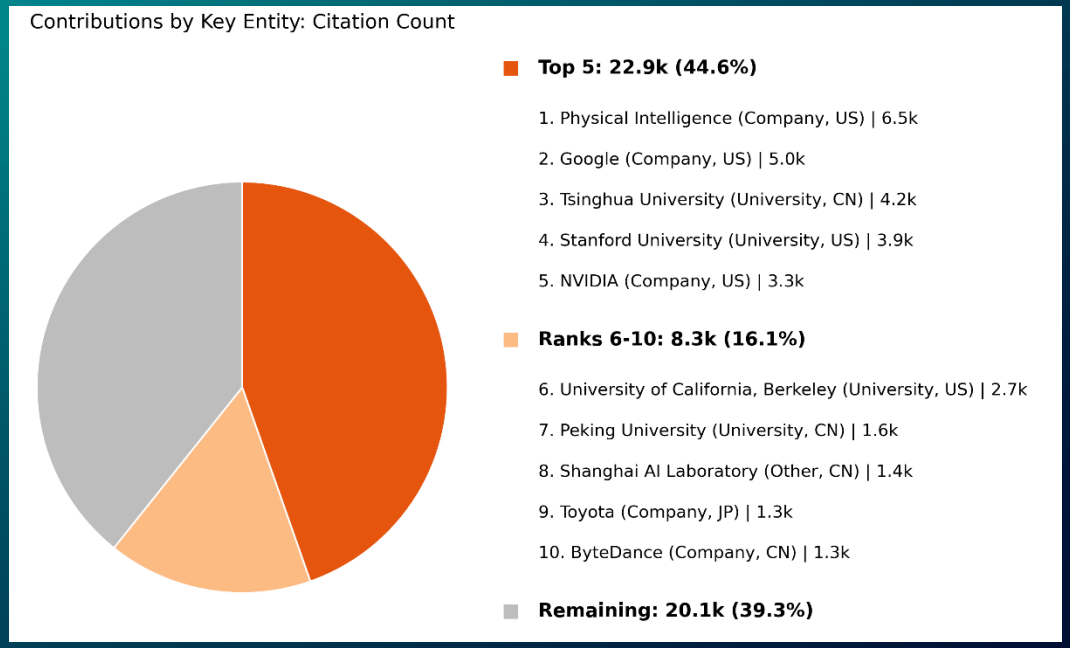


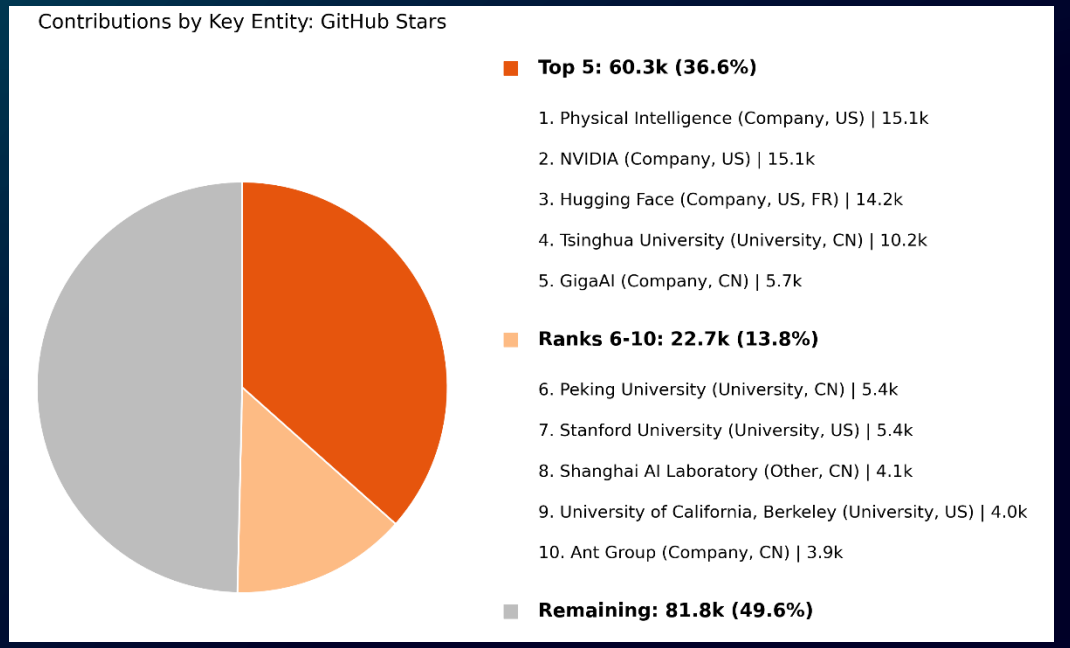
Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

SIEMENS

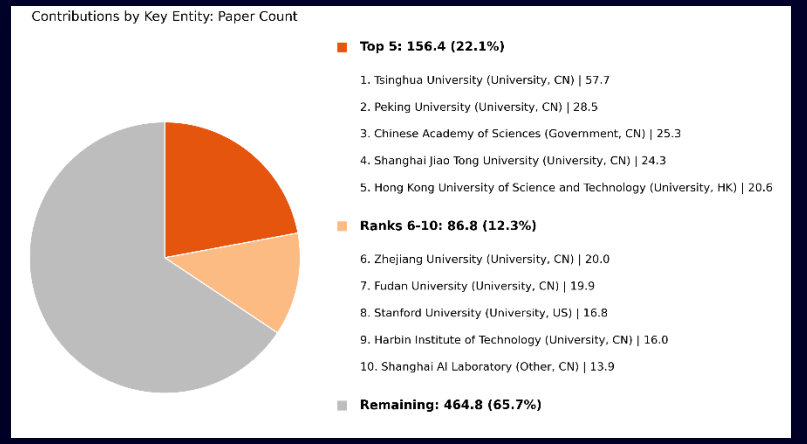
Leading Entities

A small group of institutions drives a disproportionate share of impact





- The top 10 entities contribute roughly one-third of papers, while the top 10 entities for citations and GitHub can capture more than half of the impact and engagement. (Out of 429 Key Entities identified.)
- Universities, especially CN universities are leading the papers count, while US companies and top universities lead scientific impact, and industries shape most open-source community.

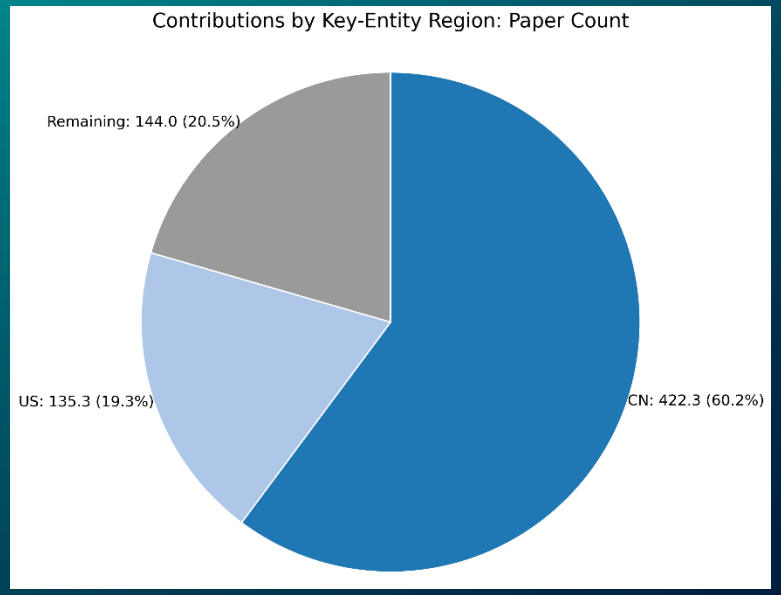


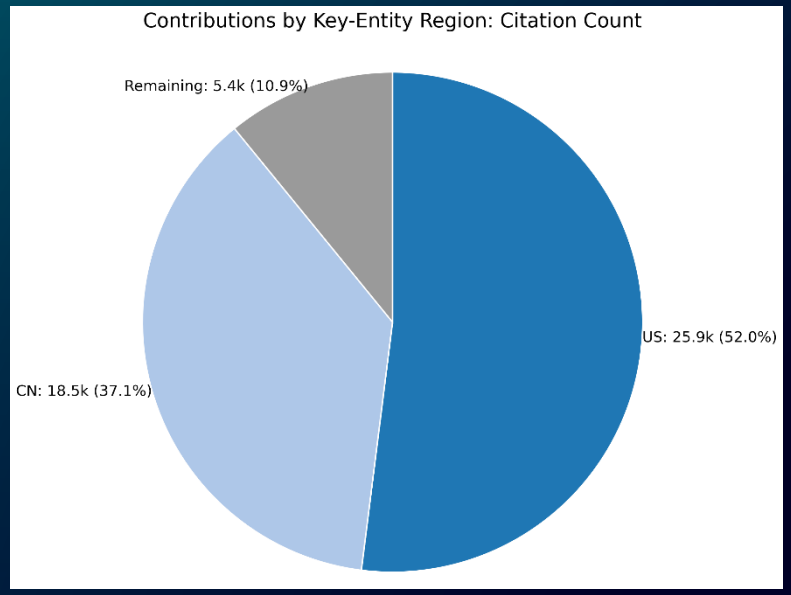
Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

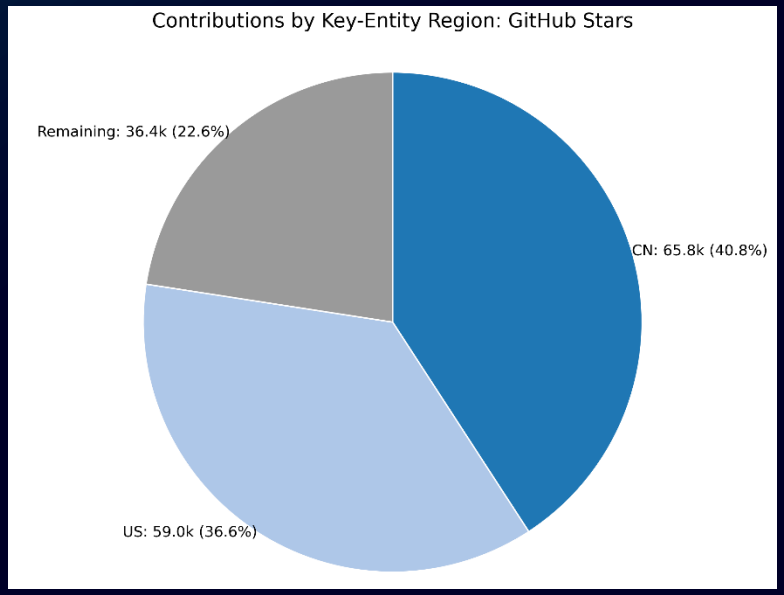
SIEMENS

Geographic Leaders

Robot Foundation Models are shaped primarily by the US and China







- The broader AI baseline suggests that China leads in total AI publication volume while the United States leads in highly influential research and notable-model production .[1]
- China leads in VLA/WAM research volume, the US leads in impact, while US and CN share adoption.

[1] Research and Development | The 2025 AI Index Report | Stanford HAI

SIEMENS

Key Takeaways

Robot foundation models are evolving into a highly concentrated, industry-driven ecosystem where open-source maturity is strongly associated with research impact and community adoption.

Initial conclusions:

- VLA remains the dominant paradigm, while WAM emerges as a fast-growing direction
- Open source is becoming the norm, but reproducibility remains limited
- Open-source maturity strongly correlates with impact
- Industry increasingly drives both impact and adoption
- The ecosystem is highly concentrated
- A US-China bipolar landscape has emerged

Potential Next steps:

- ❑ Dataset ecosystem investigation
- ❑ Foundation model dependency analysis
- ❑ The future adoption curve of VLA and WAM
- ❑ High impact innovations deep dive
- ❑ Industrial relevance assessment

Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

SIEMENS

Thank you

Yuerong Li
Siemens Ltd., China
Foundational Technologies
Research & Predevelopment
Autonomous Systems & Control
Yuerong.li@siemens.com
2026-10-30

 Unrestricted | © Siemens 2026 | 2026-10-30 | FT RPD ASC

SIEMENS

Open Source 西门子

Beijing · 2026

Oct. 29
Industrial Open Source

Oct. 30
Open Source Robotics

Agenda