TROY TECHNICAL

DRONES & ROBOTICS

WEEKLY REPORT

October 31 - November 6, 2026 | Issue 2026-W44

Safe autonomy, task economics, fleet operations and regulatory access

15	10
ANALYZED ARTICLES	PRIORITY THEMES

Issued 2026-11-06 | English edition | fixed approved cover artwork



Drones & Robotics: the boundary moved from isolated claims to qualification evidence

15 English articles were reviewed independently from the Japanese edition. Ten themes are retained for management decisions.

SIGNAL 01 | SENSING & AI

ISO/PAS 34506:2026: Qualification of Virtual Test Environments for AVs

The International Organization for Standardization (ISO) has published ISO/PAS 34506:2026, the first international standard for qualifying virtual test environments (VTEs) for automated vehicles.

SIGNAL 02 | ROBOT PLATFORM

Agilink OmniHand: Industrial Trial Results and OmniGlove Pro Specs

Agilink has demonstrated a dexterous robotic hand capable of completing 72 consecutive industrial operations with a 98% success rate at Wolong Electric.

SIGNAL 03 | TASK EXECUTION

JTEKT Physical AI: 97.1% Picking Success Rate in CVJ Line

JTEKT has achieved a 97.1% success rate in random picking processes by implementing Physical AI at its Tado Misaki Plant. The system reduced average cycle times by 16% compared to conventional control methods.

SIGNAL 04 | FLEET OPERATIONS

SARTEXO Bionic Suit: Specs of Fabric Muscle Wearable Robots

SARTEXO Inc. has begun commercializing a third-generation wearable robot that utilizes "Fabric Muscle" to provide strength assistance without motors or rigid frames.

DECISION

Focus this week's management attention on safe autonomy, task economics, fleet operations and regulatory access. Move only when the linked evidence can be reproduced under your own operating conditions.

THREE MANAGEMENT MOVES

1. Buyers: compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics.
2. Suppliers: provide sensors, actuators, compute and service evidence under real operating conditions.
3. Executives: track intervention, safety, uptime, liability, regulation, fleet scale and cost.

EVIDENCE DISCIPLINE

FACT states what the collected English source reports. BUSINESS READ and ACTION are editorial interpretations. UNKNOWN lists information that the source file does not establish. A linked article is not treated as independent confirmation of every claim.

Five numbers or evidence anchors that require conditions

98%
A11

SOURCE-BOUND CONDITION
Agilink has demonstrated a dexterous robotic hand capable of completing 72 consecutive industrial operations with a 98% success rate at Wolong Electric.

97.1%
A13

SOURCE-BOUND CONDITION
JTEKT has achieved a 97.1% success rate in random picking processes by implementing Physical AI at its Tado Misaki Plant.

40%
A04

SOURCE-BOUND CONDITION
The system can reduce lower-back muscle activity by more than 40% during repetitive lifting tasks, enabling a transition from shared industrial equipment to individual clothing-type gear.

80.0%
A12

SOURCE-BOUND CONDITION
In 24 real-world tests, it achieved top rankings in navigation and mobile manipulation, with mobile manipulation success rates reaching 80.0%.

77 km
A03

SOURCE-BOUND CONDITION
The aircraft achieved horizontal speeds of 77 km/h and vertical speeds of 84 km/h while sustaining no damage during head-on collisions at 4.5 m/s.

HOW TO USE THESE NUMBERS
Each value is shown with the condition stated in the collected English article. Do not compare values across different test methods, device sizes, operating temperatures or commercial stages without normalizing those conditions.

Where the value chain moved

Each stage combines one leading theme and one supporting theme. The report treats handoffs as evidence transfers, not decorative arrows.

1

Sensing & AI

P01/P06

The International Organization for Standardization (ISO) has published ISO/PAS 34506:2026, the first international standard.

2

Robot platform

P02/P07

Agilink has demonstrated a dexterous robotic hand capable of completing 72 consecutive industrial operations with a 98%.

3

Task execution

P03/P08

JTEKT has achieved a 97.1% success rate in random picking processes by implementing Physical AI at its Tado Misaki Plant.

4

Fleet operations

P04/P09

SARTEXO Inc.

5

Regulation & service

P05/P10

Fysics AI and CITLab have developed Fysiverse-UniWAM, a model that integrates autonomous navigation, mobile manipulation, and.

EVIDENCE REQUIRED AT EACH HANDOFF

Sensing & AI to Robot platform	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck intervention, safety, uptime, liability, regulation, fleet scale and cost.
Robot platform to Task execution	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck intervention, safety, uptime, liability, regulation, fleet scale and cost.
Task execution to Fleet operations	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck intervention, safety, uptime, liability, regulation, fleet scale and cost.
Fleet operations to Regulation & service	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck intervention, safety, uptime, liability, regulation, fleet scale and cost.

COMMON CONTROL POINT

No theme moves to a commercial commitment until a named owner has reproduced the relevant evidence and documented intervention, safety, uptime, liability, regulation, fleet scale and cost.

Priority map: maturity and next decision locus



P01	ISO/PAS 34506:2026: Qualification of Virtual Test Environments for AVs Business / rules | cue: ISO
P02	Agilink OmniHand: Industrial Trial Results and OmniGlove Pro Specs System / adoption | cue: Trial
P03	JTEKT Physical AI: 97.1% Picking Success Rate in CVJ Line System / adoption | cue: system
P04	SARTEXO Bionic Suit: Specs of Fabric Muscle Wearable Robots System / adoption | cue: commercializing
P05	Fysiverse-UniWAM: Unified World Action Model for Robotics System / adoption | cue: integrates
P06	GriFIPS Sensor: USTC's Gradient Grid for Tactile Sensing Specs System / adoption | cue: integrating
P07	GroundingPI: XPENG's 4B-parameter model for embodied perception Tech / process | cue: no system/business cue
P08	FlexiQuad: ETH Zurich's Soft-Frame Drone Specs and Crash Resistance Tech / process | cue: no system/business cue
P09	KNR System: High-Torque QDD Actuator Specs for Humanoids System / adoption | cue: System
P10	All-Polymer Micro Robot: Resilience Specs and Flight Mechanics Tech / process | cue: no system/business cue

REPRODUCIBLE POSITIONING RULE

Horizontal position uses five discrete stages: Research, Prototype, Joint evaluation, Product adoption and Scale. The vertical bands classify the next decision locus: Tech / process, System / adoption, or Business / rules (including supply systems). Article-title cues take precedence; the overview is used only when the title is silent. These are categories, not impact ranks. Bubble diameter reflects the editorial score.

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P01 ISO/PAS 34506:2026: Qualification of Virtual Test Environments for AVs

A14 | Sensing & AI | Research

2026-11-05

FACT

The International Organization for Standardization (ISO) has published ISO/PAS 34506:2026, the first international standard for qualifying virtual test environments (VTEs) for automated vehicles. This framework provides a common method for developers and regulators to validate simulation results, supporting the safe and efficient deployment of automated driving systems.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P01.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 20/25 | MATURITY 1/5 | DECISION LOCUS: BUSINESS / RULES

P02 Agilink OmniHand: Industrial Trial Results and OmniGlove Pro Specs

A11 | Robot platform | Joint evaluation

2026-11-04

FACT

Agilink has demonstrated a dexterous robotic hand capable of completing 72 consecutive industrial operations with a 98% success rate at Wolong Electric. To address the shortage of physical interaction data, the company launched the OmniGlove Pro, a tactile data collection glove designed to bridge the gap between simulation and real-world deployment.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P02.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 20/25 | MATURITY 3/5 | DECISION LOCUS: SYSTEM / ADOPTION

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P03 JTEKT Physical AI: 97.1% Picking Success Rate in CVJ Line

A13 | Task execution | Research

2026-11-06

FACT

JTEKT has achieved a 97.1% success rate in random picking processes by implementing Physical AI at its Tado Misaki Plant. The system reduced average cycle times by 16% compared to conventional control methods.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P03.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 20/25 | MATURITY 1/5 | DECISION LOCUS: SYSTEM / ADOPTION

P04 SARTEXO Bionic Suit: Specs of Fabric Muscle Wearable Robots

A04 | Fleet operations | Joint evaluation

2026-11-05

FACT

SARTEXO Inc. has begun commercializing a third-generation wearable robot that utilizes "Fabric Muscle" to provide strength assistance without motors or rigid frames. The system can reduce lower-back muscle activity by more than 40% during repetitive lifting tasks, enabling a transition from shared industrial equipment to individual clothing-type gear.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P04.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 20/25 | MATURITY 3/5 | DECISION LOCUS: SYSTEM / ADOPTION

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P05 Fysiverse-UniWAM: Unified World Action Model for Robotics

A12 | Regulation & service | Pilot

2026-11-01

FACT

Fysics AI and CITLab have developed Fysiverse-UniWAM, a model that integrates autonomous navigation, mobile manipulation, and dexterous operation without relying on large-scale robot pre-training. In 24 real-world tests, it achieved top rankings in navigation and mobile manipulation, with mobile manipulation success rates reaching 80.0%.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P05.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 20/25 | MATURITY 2/5 | DECISION LOCUS: SYSTEM / ADOPTION

P06 GriFIPS Sensor: USTC's Gradient Grid for Tactile Sensing Specs

A07 | Sensing & AI | Pilot

2026-10-31

FACT

Researchers from the University of Science and Technology of China (USTC) developed GriFIPS, a flexible iontronic pressure sensor that overcomes the "impossible triangle" of sensitivity, linear range, and linearity. By integrating a direct-write printed gradient grid layer, the sensor achieves a detection range from 2.1Pa to 360kPa, enabling humanoid robots to distinguish materials and textures with high accuracy.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P06.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 19/25 | MATURITY 2/5 | DECISION LOCUS: SYSTEM / ADOPTION

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P07 GroundingPI: XPENG's 4B-parameter model for embodied perception

A10 | Robot platform | Joint evaluation

2026-11-06

FACT

XPENG, Peking University, and the University of Hong Kong have released GroundingPI, a 4-billion-parameter foundation model for embodied perception. The model outperformed GPT-6 Astra in a 34-benchmark evaluation, scoring 73.68 points compared to 71.54. This development reduces manual teaching costs by achieving higher success rates with significantly less demonstration data.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P07.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 19/25 | MATURITY 3/5 | DECISION LOCUS: TECH / PROCESS

P08 FlexiQuad: ETH Zurich's Soft-Frame Drone Specs and Crash Resistance

A03 | Task execution | Pilot

2026-11-05

FACT

ETH Zurich researchers developed FlexiQuad, a ring-shaped quadcopter that utilizes a flexible frame to absorb impact shocks without sacrificing high-speed flight. The aircraft achieved horizontal speeds of 77 km/h and vertical speeds of 84 km/h while sustaining no damage during head-on collisions at 4.5 m/s.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P08.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 19/25 | MATURITY 2/5 | DECISION LOCUS: TECH / PROCESS

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P09 KNR System: High-Torque QDD Actuator Specs for Humanoids

A06 | Fleet operations | Pilot

2026-11-04

FACT

KNR System has developed a high-torque Quasi-Direct Drive (QDD) actuator utilizing a compound planetary gear system to optimize humanoid lower-limb joints. The unit achieves a peak torque of 308Nm while balancing backdrivability and stiffness, positioning the company to complete a full actuator lineup by 2027.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P09.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 19/25 | MATURITY 2/5 | DECISION LOCUS: SYSTEM / ADOPTION

P10 All-Polymer Micro Robot: Resilience Specs and Flight Mechanics

A02 | Regulation & service | Pilot

2026-11-03

FACT

Researchers from UCLA and UC Davis have developed a 185 mg flying robot made entirely of flexible polymers that can resume flight after severe impacts. By utilizing electrostriction for propulsion and asymmetric wings for lift, the device mimics insect-like resilience for use in confined-space missions.

WHY IT MATTERS

The decision relevance is safe autonomy, task economics, fleet operations and regulatory access. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, provide sensors, actuators, compute and service evidence under real operating conditions.

ACTION

Within 30 days, compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics; record the evidence and owner against P10.

UNKNOWN

Still unproven or incompletely stated: intervention, safety, uptime, liability, regulation, fleet scale and cost.

EDITORIAL SCORE 19/25 | MATURITY 2/5 | DECISION LOCUS: TECH / PROCESS

Playbook and 0-5 year roadmap

STAKEHOLDER	NOW | 0-30 DAYS	NEXT | 1-12 MONTHS	LATER | 1-5 YEARS
Operating companies	compare humanoids, drones and robotaxis by task success, intervention rate, safety and unit economics	Run production-like qualification with explicit acceptance and stop criteria.	Build a portfolio and architecture that can absorb technology and supplier changes.
Materials, equipment and technology suppliers	provide sensors, actuators, compute and service evidence under real operating conditions	Create shared reliability, process-window and failure-analysis data with customers.	Standardize interfaces, traceability, lifecycle support and recovery services.
Trading, investment and legal teams	Map intervention, safety, uptime, liability, regulation, fleet scale and cost.	Contract for capacity, quality, change notice, liability, alternatives and exit.	Diversify regional, technical and customer concentration risk.

ROADMAP

NOW | 0-30 DAYS
Evidence ledger
Owner: Strategy + quality
Deliverable: claim, source, condition, owner

NOW | 0-30 DAYS
Risk screen
Owner: Procurement + legal
Deliverable: unknowns, alternatives, stop

NEXT | 1-12 MONTHS
Joint qualification
Owner: R&D + supplier
Deliverable: process window and failure data

NEXT | 1-12 MONTHS
Commercial gate
Owner: Business + finance
Deliverable: unit economics and capacity

LATER | 1-5 YEARS
Platform strategy
Owner: Executive team
Deliverable: portfolio and interface roadmap

LATER | 1-5 YEARS
Service layer
Owner: Operations + channel
Deliverable: monitoring, maintenance and recovery

GO / NO-GO GATES

GATE	OWNER	REQUIRED EVIDENCE	NO-GO CONDITION
G1 Evidence	**Quality**	Source, test conditions and reproducibility	No traceable evidence
G2 Integration	**R&D**	Interface, process window and failure analysis	Cannot meet system conditions
G3 Commercial	**Business**	Capacity, total cost, contract and alternatives	Economics or supply cannot be supported
G4 Lifecycle	**Operations**	Monitoring, maintenance, change notice and exit	No accountable operating plan

ANALYZED ARTICLES | ITEMS 01-15

Every title and URL is displayed in full. URLs wrap without shortening and remain clickable. A verified-reference label means the translated HTML did not retain its original source URL.

ID	FULL ARTICLE TITLE	FULL SOURCE / VERIFIED REFERENCE URL - CLICKABLE
A01	Robo-moth sensor growth: University of Tartu and IIT's 2026 prototype	https://newatlas.com/robotics/tartu-iit-robot-moth-artificial-blood-uv-sensor/
A02	All-Polymer Micro Robot: Resilience Specs and Flight Mechanics	https://www.heise.de/en/news/Tough-soft-flying-robot-keeps-going-after-collisions-11509017.html
A03	FlexiQuad: ETH Zurich's Soft-Frame Drone Specs and Crash Resistance	https://xenospectrum.com/en/eth-flexiquad-soft-drone-collision/
A04	SARTEXO Bionic Suit: Specs of Fabric Muscle Wearable Robots	https://www.newswise.com/articles/i-bought-an-outfit-turns-out-it-was-a-robot-kimm-spin-off-sartexo-begins-commercializing-third-generation-wearable-robots
A05	DGIST Soft Robot Sensing: Battery-free Mechanoluminescence Fiber	https://www.imaeil.com/page/view/2026110307594864132
A06	KNR System: High-Torque QDD Actuator Specs for Humanoids	https://www.livebiz.today/news/articleView.html?idxno=206186
A07	GriFIPS Sensor: USTC's Gradient Grid for Tactile Sensing Specs	https://www.sohu.com/a/1095026980_489960
A08	T-Rex AI: Panasonic's Tactile-Reactive Dexterous Manipulation	https://ai.watch.impress.co.jp/docs/news/2153977.html
A09	Underwater Exoskeletons: PEAKED's Impact on Diver Gas Consumption	https://knowridge.com/2026/11/wearable-underwater-robots-could-help-scuba-divers-breathe-less-air/
A10	GroundingPI: XPENG's 4B-parameter model for embodied perception	https://autonews.gasgoo.com/articles/icv/xpeng-and-universities-unveil-groundingpi-foundation-model-for-embodied-perception-2118547420962770945
A11	Agilink OmniHand: Industrial Trial Results and OmniGlove Pro Specs	https://kr-asia.com/agilink-launches-tactile-data-glove-after-72-step-robotic-hand-trial
A12	Fysiverse-UniWAM: Unified World Action Model for Robotics	https://original.ifeng.com/c/8xhHJZYQw7o
A13	JTEKT Physical AI: 97.1% Picking Success Rate in CVJ Line	https://response.jp/article/2026/11/06/418698.html
A14	ISO/PAS 34506:2026: Qualification of Virtual Test Environments for AVs	https://highways-news.com/first-international-standard-for-trusted-simulation-for-automated-vehicles-published/
A15	Aisin and Tohoku University: 16nm AI SoC with STT-MRAM Specs	https://response.jp/article/2026/11/06/418694.html

Drones_Robotics — Selected Articles

Date: 2026-11-08

Articles: 15

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#04 SARTEXO Bionic Suit: Specs of Fabric Muscle Wearable Robots

#05 DGIST Soft Robot Sensing: Battery-free Mechanoluminescence Fiber

#06 KNR System: High-Torque QDD Actuator Specs for Humanoids

#07 GriFIPS Sensor: USTC's Gradient Grid for Tactile Sensing Specs

#08 T-Rex AI: Panasonic's Tactile-Reactive Dexterous Manipulation

#09 Underwater Exoskeletons: PEAKED's Impact on Diver Gas Consumption

#10 GroundingPI: XPENG's 4B-parameter model for embodied perception

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#13 JTEKT Physical AI: 97.1% Picking Success Rate in CVJ Line

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#15 Aisin and Tohoku University: 16nm AI SoC with STT-MRAM Specs

#01 Robo-moth sensor growth: University of Tartu and IIT's 2026 prototype

Published November 05, 2026 New Atlas USA



OVERVIEW

Researchers from the University of Tartu and the Italian Institute of Technology have developed a moth-shaped robot capable of growing new UV sensors using artificial blood. By utilizing a chemical reaction triggered by ultraviolet light, the robot can add hardware functionality on-site, offering potential for deployment in unpredictable environments like other planets or collapsed buildings.

IN DEPTH

Key Findings

Engineers have created a prototype robot that can grow new sensors within its own body using a circulatory system. Unlike traditional robots with fixed hardware, this robo-moth uses chemicals in its artificial blood to create a sensor wherever UV light is applied to its 3D-printed plastic body. This allows the environment to pattern the robot's sensing capabilities based on real-time needs.

Technical Details

The robot's body consists of transparent 3D-printed plastic integrated with gold wires and tiny veins. A pump circulates approximately 3 ml of liquid containing pyrrole and a light-activated additive. When UV light hits a specific patch of the body, the pyrrole transforms into polypyrrole, an electrically conductive plastic, turning the patch black and creating a sensor. The liquid seeps about a hundredth of a millimeter into the surrounding plastic.

- **Functionality:** When UV light hits the grown sensor, electrical resistance drops, triggering an onboard chip to blink an LED or flap the wings.
- **Durability:** The sensor remained functional after four months in storage.
- **Current Limitations:** The robot cannot yet fly independently; wings are moved by nitinol wires heated by an external power supply. The sensor growth process is irreversible.

Background & Context

This research builds on a history of self-mending and self-constructing robotics. Previous examples include Cornell's 2022 soft robot with self-healing optical sensors and IIT's FiloBot, which 3D-prints its own body. Additionally, Cornell developed robot blood for energy storage in jellyfish and worm bots in 2025.

Significance & Outlook

The primary advantage of this system is the ability to add functions that were not present at the factory. The researchers have conducted initial tests to power the microprocessor using reagents in the fluid, suggesting a future where energy is stored in the blood. The team envisions that within 10 years, artificial circulatory systems will be a standard choice for specific robotic applications, allowing the fluid to be flushed and reused with different chemical mixtures.

Source: https://newatlas.com/robotics/tartu-iit-robot-moth-artificial-blood-uv-sensor/

Collected: November 07, 2026 | Automated Research System (AI)

#02 All-Polymer Micro Robot: Resilience Specs and Flight Mechanics

Published November 03, 2026 heise online Germany



OVERVIEW

Researchers from UCLA and UC Davis have developed a 185 mg flying robot made entirely of flexible polymers that can resume flight after severe impacts. By utilizing electrostriction for propulsion and asymmetric wings for lift, the device mimics insect-like resilience for use in confined-space missions.

IN DEPTH

Key Findings

A research team from the University of California, Los Angeles (UCLA) and the University of California, Davis (UC Davis) has developed a tiny, all-polymer flying robot capable of withstanding significant physical collisions. The prototype weighs 185 mg and can generate lift equal to three times its own body weight, enabling a climb speed of 0.4 m/s. During resilience testing, the robot remained operational after being hit by a flyswatter and after being subjected to a load 11,000 times its weight.

Technical Details

The robot's flight system relies on the following polymer-based components:

- **Actuation:** An electrically actuated soft muscle made of a thin layer of relaxor ferroelectric polymer. This material expands via electrostriction when an electric field is applied, driving the wings without additional mechanics.
- **Wing Design:** Flexible, cone-shaped wings that are aerodynamically asymmetric.
- **Impact Resistance:** The polymer structure allows wings to deform upon contact with hard materials without creating creases or kinks, providing high resistance to impacts.

Background and Context

Traditional micro aerial robots designed for search and rescue or inspection in confined spaces often utilize delicate components, making them vulnerable to collisions. To address this, the researchers sought to mimic the resilience of insects, which can repeatedly strike surfaces and continue flying. The findings were published in the study “Takeoff of an all-polymer micro aerial flying robot” in *Science Robotics*.

Significance and Outlook

The robot currently operates via an external electrical connection. Future development will focus on integrating sensors and an onboard power source to enable operation outside of laboratory environments. The goal is to leverage the robot's "mechanical intelligence" to allow it to autonomously resume missions after experiencing collisions in the field.

Source: https://www.heise.de/en/news/Tough-soft-flying-robot-keeps-going-after-collisions-11509017.html

Collected: November 07, 2026 | Automated Research System (AI)

#03 FlexiQuad: ETH Zurich's Soft-Frame Drone Specs and Crash Resistance

Published November 05, 2026 XenoSpectrum



OVERVIEW

ETH Zurich researchers developed FlexiQuad, a ring-shaped quadcopter that utilizes a flexible frame to absorb impact shocks without sacrificing high-speed flight. The aircraft achieved horizontal speeds of 77 km/h and vertical speeds of 84 km/h while sustaining no damage during head-on collisions at 4.5 m/s.

IN DEPTH

Key Findings

FlexiQuad demonstrates that a flexible airframe can maintain high agility and speed while providing significant crash resistance. In manually piloted outdoor tests, the 405 g aircraft exceeded 84 km/h vertically and 77 km/h horizontally, with a thrust-to-weight ratio of 4.15. Impact tests showed the drone suffered no damage when hitting a panel head-on at 4.5 m/s (16.2 km/h). Additionally, experiments using an improved version showed the drone could autonomously regain stable flight after hitting a wall.

Technical Details

The aircraft features a ring-shaped frame with a diameter of 216 mm, eliminating the central body. The skeleton consists of four FR-4 fiberglass composite strips (145.5 × 54 × 0.5 mm each). Two primary design innovations enable this performance:

- **Anisotropic Stiffness:** The frame is designed to be soft in the in-plane direction but 2.2 times stiffer against propeller thrust. This allows the drone to maintain its shape during flight while deforming substantially upon impact. The overall stiffness is approximately 1,000 times lower than conventional aircraft.
- **Distributed Battery Placement:** Four 330 mAh 3-cell batteries are placed individually under each motor. Finite element analysis indicated that concentrating batteries in the center would increase vibration at the motors by 13-fold and at the control unit by 8-fold during acceleration.

Background and Context

Developed by Luca Girardi and Stefano Mintchev at ETH Zurich's Environmental Robotics Lab, FlexiQuad builds upon previous crash-resistant research, such as a 2017 EPFL insect-style drone that used magnetic joints. Unlike that design, FlexiQuad utilizes a fully flexible ring. The project has been nominated for the 2026 Spark Award, and a patent application has been filed for the structural design.

Significance and Outlook

The research suggests that frame flexibility does not necessarily impair agility, as FlexiQuad achieved linear acceleration above 3 g and angular acceleration above 300 rad/s². While simulation showed peak deceleration less than a quarter of a rigid frame and bench tests showed peak load reductions up to 39 times, the authors note that these figures depend on specific test conditions. The findings are currently awaiting peer review.

Source: https://xenospectrum.com/en/eth-flexiquad-soft-drone-collision/

Collected: November 07, 2026 | Automated Research System (AI)

#04 SARTEXO Bionic Suit: Specs of Fabric Muscle Wearable Robots

Published November 05, 2026　Newswise（韓国機械研究院 KIMM）　South Korea



OVERVIEW

SARTEXO Inc. has begun commercializing a third-generation wearable robot that utilizes "Fabric Muscle" to provide strength assistance without motors or rigid frames. The system can reduce lower-back muscle activity by more than 40% during repetitive lifting tasks, enabling a transition from shared industrial equipment to individual clothing-type gear.

IN DEPTH

Key Findings

SARTEXO Inc., a spin-off from the Korea Institute of Machinery and Materials (KIMM), is commercializing the Bionic Suit, a clothing-type wearable robot. The system is designed to be as easy to wear as ordinary clothing, targeting industrial worksites and daily life. The Bionic Suit Full is the first clothing-type wearable robot capable of simultaneously assisting three joints: the lower back, shoulders, and elbows.

Technical Details

The core technology is "Fabric Muscle," a textile that generates force through shape memory alloy (SMA) wires thinner than a human hair. These wires are coiled into spring-like yarn and woven into fabric. When an electric current is applied, the fabric contracts like a human muscle; it relaxes upon cooling. Technical specifications include:

- **Strength-to-weight ratio:** 10 g of Fabric Muscle can lift 10–15 kg, which is up to 1,500 times its own weight.
- **Bionic Suit Waist:** Weighs 1.3 kg, including the controller and battery, and supports the lower back.
- **Bionic Suit Full:** Weighs 1.8 kg or less and supports the lower back, shoulders, and elbows.
- **Performance:** Reduces lower-back muscle activity by over 40% during repetitive lifting.

Background and Context

The technology is based on SMA artificial muscle research conducted by CEO Cheol Hoon Park at KIMM since 2012. SARTEXO defines this as a "third-generation" wearable robot. While first-generation robots required users to fit into mechanical frames and second-generation robots used strapped equipment, the Bionic Suit integrates the robot directly into the clothing. To scale production, SARTEXO has implemented an automated weaving system to replace manual processes.

Significance and Outlook

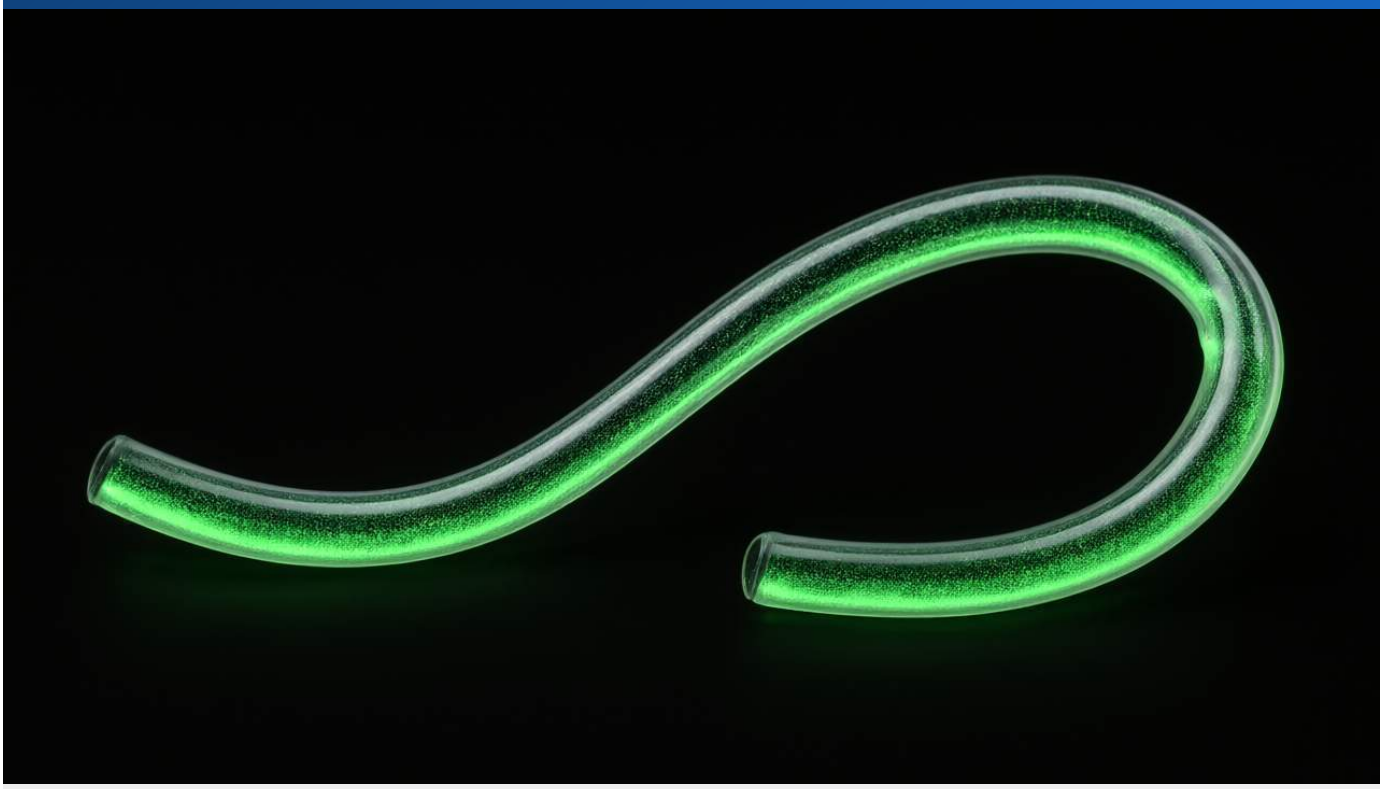
By eliminating heavy frames and high costs associated with conventional industrial robots, SARTEXO intends to move the technology from shared worksite equipment to individual ownership. The suits are washable, storable, and can be integrated directly into uniforms. Beyond logistics, construction, and manufacturing, the company plans to expand into defense, rehabilitation, caregiving, and general daily use.

Source: https://www.newswise.com/articles/i-bought-an-outfit-turns-out-it-was-a-robot-kimm-spin-off-sartexo-begins-commercializing-third-generation-wearable-robots

Collected: November 07, 2026 | Automated Research System (AI)

#05 DGIST Soft Robot Sensing: Battery-free Mechanoluminescence Fiber

Published November 03, 2026 매일신문 South Korea



OVERVIEW

Researchers at DGIST have developed a power-free sensing technology for soft robots using high-stretchability mechanoluminescence fibers. These fibers emit green light upon deformation, allowing for the intuitive tracking of robot trajectories without the need for batteries or rigid electronic sensors.

IN DEPTH

Key Findings

A research team led by Professor Soon-moon Jung at the DGIST Graduate School of Engineering has implemented a power-free soft robot sensing technology. By applying a specialized "mechanoluminescence fiber," the team enabled robots to emit intuitive light that reveals their movement trajectories without requiring batteries or complex electronic circuitry.

Technical Details

The technology utilizes the phenomenon of mechanoluminescence, where a material emits light when subjected to physical forces such as stretching, bending, or pressure. The researchers developed a "tube-type mechanoluminescence fiber" by mixing luminescence particles (zinc sulfide) with a flexible polymer material and filling it into an elastic silicone tube.

- **Durability:** The fibers can be stretched to more than 200% of their original length.
- **Stability:** The initial luminescence performance remains stable even after more than 1,000 cycles of stretching and releasing.
- **Implementation:** When the fiber is applied as a mesh over the surface of a soft robot, the areas undergoing deformation immediately emit green light.

Background & Context

Soft robots made from flexible materials like rubber or silicone are critical for next-generation applications in medical devices and disaster rescue due to their muscle-like movement. However, monitoring the minute movements of these robots typically requires rigid electronic sensors and wiring, which obstruct the inherent flexibility of the robot. This new fiber acts as a true power-free optical sensor, eliminating the need for external power sources or traditional sensors to verify bending and expansion.

Significance & Outlook

Professor Soon-moon Jung stated that this research provides a breakthrough for immediately identifying deformation states without hindering flexible movement. Future plans include improving luminescence performance and durability to expand the application of these flexible electronic elements to wearable devices and artificial skin for human-robot interaction. The study, supported by the Ministry of Science and ICT and the National Research Foundation of Korea, was published as the October cover story in the journal *Small Structures*.

Source: https://www.imaeil.com/page/view/2026110307594864132

Collected: November 07, 2026 | Automated Research System (AI)

#06 KNR System: High-Torque QDD Actuator Specs for Humanoids

Published November 04, 2026 라이브비즈 South Korea



OVERVIEW

KNR System has developed a high-torque Quasi-Direct Drive (QDD) actuator utilizing a compound planetary gear system to optimize humanoid lower-limb joints. The unit achieves a peak torque of 308Nm while balancing backdrivability and stiffness, positioning the company to complete a full actuator lineup by 2027.

IN DEPTH

Key Findings

KNR System has developed a high-torque QDD actuator specifically optimized for the lower-body joints of humanoid and quadruped robots. The actuator features a compact design with a diameter of 110mm and a height of 83mm, weighing 1.76kg. Despite its size, it delivers a rated torque of 121Nm and a peak torque of 308Nm.

Technical Details

To overcome the traditional trade-off between stiffness and backdrivability, KNR System implemented a Bi-Lateral Gear Drive (BGD) utilizing a compound planetary gear structure. This technical approach allows the actuator to maintain high backdrivability—essential for reacting to external shocks and navigating rough terrain—while providing the stiffness required for high-load operations.

- **Design:** Ultra-thin profile reducing axial thickness compared to conventional planetary gears.
- **Performance:** Achieves a gear reduction ratio 2 to 4 times higher than existing QDD actuators.
- **Torque Capacity:** The 308Nm peak torque is equivalent to a rotational force where a weight of 31.4kg is applied to the end of a 1-meter rod.

Background and Context

Standard QDD actuators typically employ low gear ratios to ensure shock absorption and backdrivability. However, this often leads to increased volume and heat generation when applied to hip, knee, or ankle joints due to the limitations of motor torque amplification. KNR System's BGD technology resolves these constraints by allowing higher reduction ratios without sacrificing the ability to respond flexibly to external forces.

Significance and Outlook

KNR System is leveraging its existing expertise in hydraulic actuators—including a 1600Nm hybrid actuator—to expand its portfolio. The company is the only firm globally to have developed robot-specific hydraulic, electric, and hybrid actuators. KNR System plans to introduce additional electric actuators to establish a comprehensive "robot actuator full lineup" by 2027.

Source: https://www.livebiz.today/news/articleView.html?idxno=206186

Collected: November 07, 2026 | Automated Research System (AI)

#07 GriFIPS Sensor: USTC's Gradient Grid for Tactile Sensing Specs

Published October 31, 2026　搜狐（机器人大讲堂）　China



OVERVIEW

Researchers from the University of Science and Technology of China (USTC) developed GriFIPS, a flexible iontronic pressure sensor that overcomes the "impossible triangle" of sensitivity, linear range, and linearity. By integrating a direct-write printed gradient grid layer, the sensor achieves a detection range from 2.1Pa to 360kPa, enabling humanoid robots to distinguish materials and textures with high accuracy.

IN DEPTH

Key Findings

The GriFIPS sensor demonstrates a sensitivity of 175.9 kPa^{-1} and a linear detection upper limit of approximately 360kPa, with a coefficient of determination R^2=0.997. It can detect pressures as low as 2.1Pa (roughly the weight of a ladybug) with a response time of 25ms and a recovery time of 50ms. In material recognition tests across 14 different substances, the system achieved an accuracy rate of 99.86%.

Technical Details

The team moved away from modifying core functional materials, instead adding a gradient grid interlayer between the electrode and the ionic gel. This layer, made of Dragon Skin 20 silicone via direct-write printing, consists of three concentric rings (diameters of 4mm, 8mm, and 12mm) with a line width and thickness of 100μm. This structure ensures a progressive contact mechanism where the center responds first, and the contact area expands radially as pressure increases.

To prevent signal saturation, the sensor utilizes a liquid metal composite electrode made of gallium-indium and PDMS. Ultrasonic sintering creates a conductive path with micron-scale surface roughness, which maintains capacitance changes over a wider pressure range compared to smooth copper electrodes.

Background & Context

Current humanoid robots struggle with "blind spots" in vision, such as self-occlusion or the inability to distinguish between visually identical but mechanically different elastomers. While iontronic sensors offer high sensitivity, they typically suffer from rapid signal saturation. Previous solutions involving complex microstructures or multi-layer stacking were often too cumbersome for large-scale array production.

Significance & Outlook

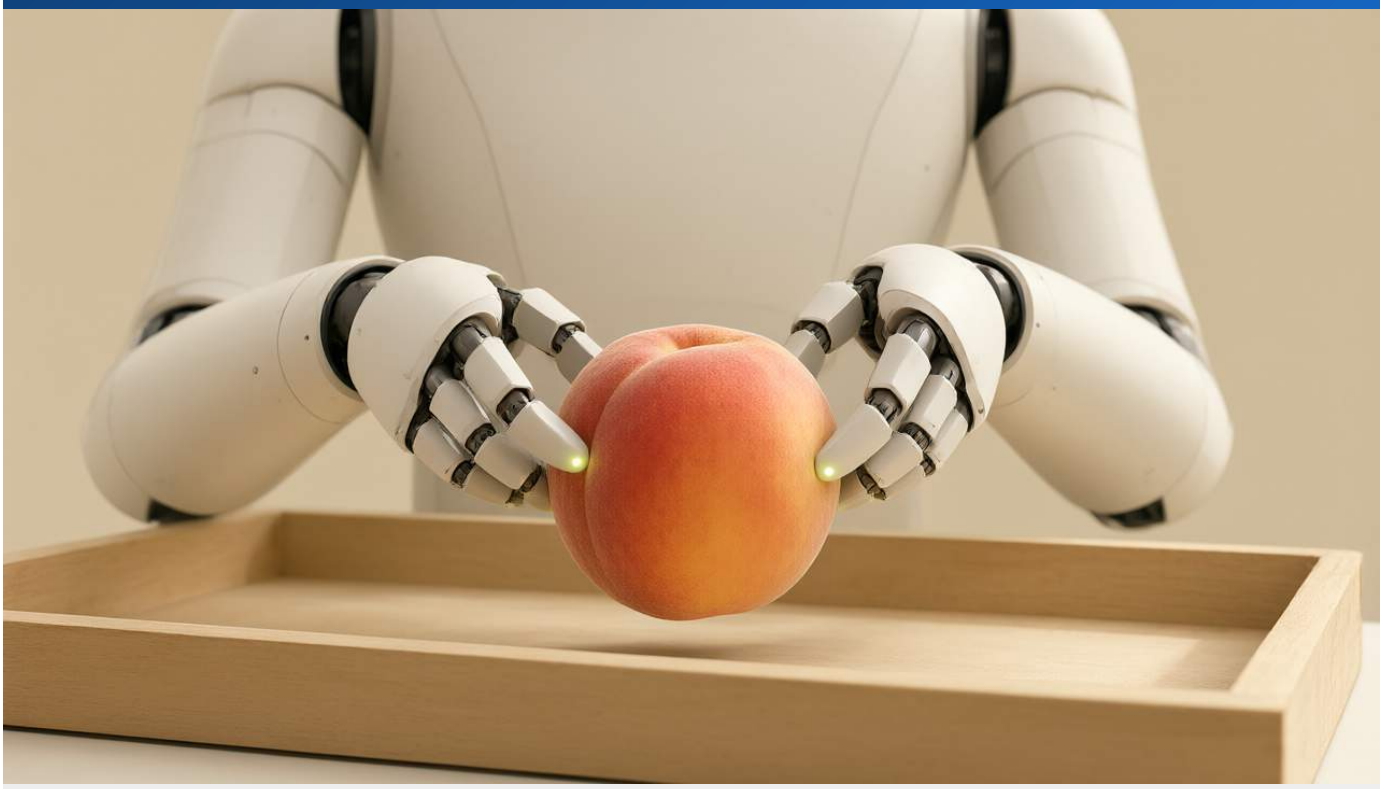
The "decoupled" design allows researchers to adjust sensing characteristics by modifying grid printing parameters rather than redesigning materials. Integration into robotic fingertips enabled 99.72% accuracy in classifying 12 types of fabrics and successful execution of blind-hole assembly and weight-sensing tasks. Future challenges include optimizing the full parameter space of the grid, adapting the planar structure to curved surfaces, and improving wiring for large-scale arrays.

Source: https://www.sohu.com/a/1095026980_489960

Collected: November 07, 2026 | Automated Research System (AI)

#08 T-Rex AI: Panasonic's Tactile-Reactive Dexterous Manipulation

Published November 05, 2026　AI Watch（Impress）　Japan



OVERVIEW

Panasonic HD and partners developed T-Rex, a robot operation AI that integrates tactile feedback into a Vision-Language-Action (VLA) model for dexterous bimanual tasks. The system achieved a 65% average success rate across 12 delicate tasks, surpassing existing methods by 30 percentage points.

IN DEPTH

Key Findings

Panasonic Holdings, Panasonic R&D Company of America (PRDCA), and researchers from UC Berkeley, NVIDIA, Stanford University, Roma La Sapienza University, and ItalAI have developed "Tactile-Reactive Dexterous Manipulation" (T-Rex). This AI enables robots to perform complex bimanual operations by responding in real-time to fingertip tactile sensations. In evaluations involving 12 types of tasks requiring delicate force control and the handling of soft objects, T-Rex achieved an average success rate of 65%, which is 30 percentage points higher than existing methods.

Technical Details

T-Rex integrates tactile information into a Vision-Language-Action (VLA) model, which generates robot movements based on visual and linguistic inputs. The architecture combines two distinct processing speeds to ensure precision:

- **Action Generation Module:** Operates at approximately 5Hz, utilizing vision and language to create the general framework of the movement.
- **Action Correction Module:** Operates at approximately 20Hz, processing tactile data to capture contact states and perform high-speed, real-time corrections.

The model was trained on a dataset consisting of over 100 hours of bimanual robot operation data, comprising more than 7,700 instances. This dataset combined 22 basic movements with over 200 types of daily necessities. Recorded data includes synchronized natural language instructions, robot states, footage from head and wrist cameras, and force/deformation data from 10 fingertip tactile sensors.

Background & Context

The research findings are scheduled for presentation at the Conference on Robot Learning (CoRL), an international conference on robot learning held in Austin, USA, from November 9 to 12.

Significance & Outlook

Panasonic intends to apply this technology to industrial environments where precise force adjustment and contact-state monitoring are critical. Target applications include the insertion, removal, and tightening of parts in manufacturing, as well as the handling of fragile or flexible items in logistics. The goal is to reduce the burden on human workers and mitigate labor shortages by automating these high-precision tasks.

Source: https://ai.watch.impress.co.jp/docs/news/2153977.html

Collected: November 07, 2026 | Automated Research System (AI)

#09 Underwater Exoskeletons: PEAKED's Impact on Diver Gas Consumption

Published November 05, 2026 Knowridge Science Report China



OVERVIEW

Wearable robotic assistance can reduce the respiratory minute volume of scuba divers by up to 30% during specific movements. By assisting hip flexion and extension, these systems lower physical exertion and ventilatory demand during demanding underwater tasks.

IN DEPTH

Key Findings

Research led by Wu Xinyu at the Shenzhen Institute of Advanced Technology indicates that wearable robotic assistance can significantly reduce the amount of breathing gas scuba divers use per minute. In experiments using the PEAKED soft exosuit, researchers reported reductions in respiratory minute volume of approximately 30% during flutter kicking, 26% during frog kicking, and 18% during underwater walking.

Technical Details

The PEAKED system is a soft exosuit designed specifically for the hips, supporting both flexion and extension. Unlike rigid frames that may restrict leg positioning, the flexible structure of PEAKED accommodates various movements, including underwater walking, frog kicking, and flutter kicking. The system is designed to assist physical movement while ensuring the diver retains full control, awareness, and decision-making capability.

Background and Context

Designing for underwater environments requires different considerations than land-based exoskeletons. While buoyancy reduces the need to support body weight, water resistance persists throughout most of a leg's movement, necessitating assistance in both directions. Consequently, the timing and direction of force must be precisely matched to the specific movement being performed; a configuration optimized for flutter kicking may require adjustments for walking along the seabed.

Furthermore, practical deployment requires the system to integrate with existing scuba gear, such as ballast and tanks. Essential design requirements include pressure-resistant waterproofing, comfortable movement, and the ability to remove the equipment rapidly during emergencies.

Significance and Outlook

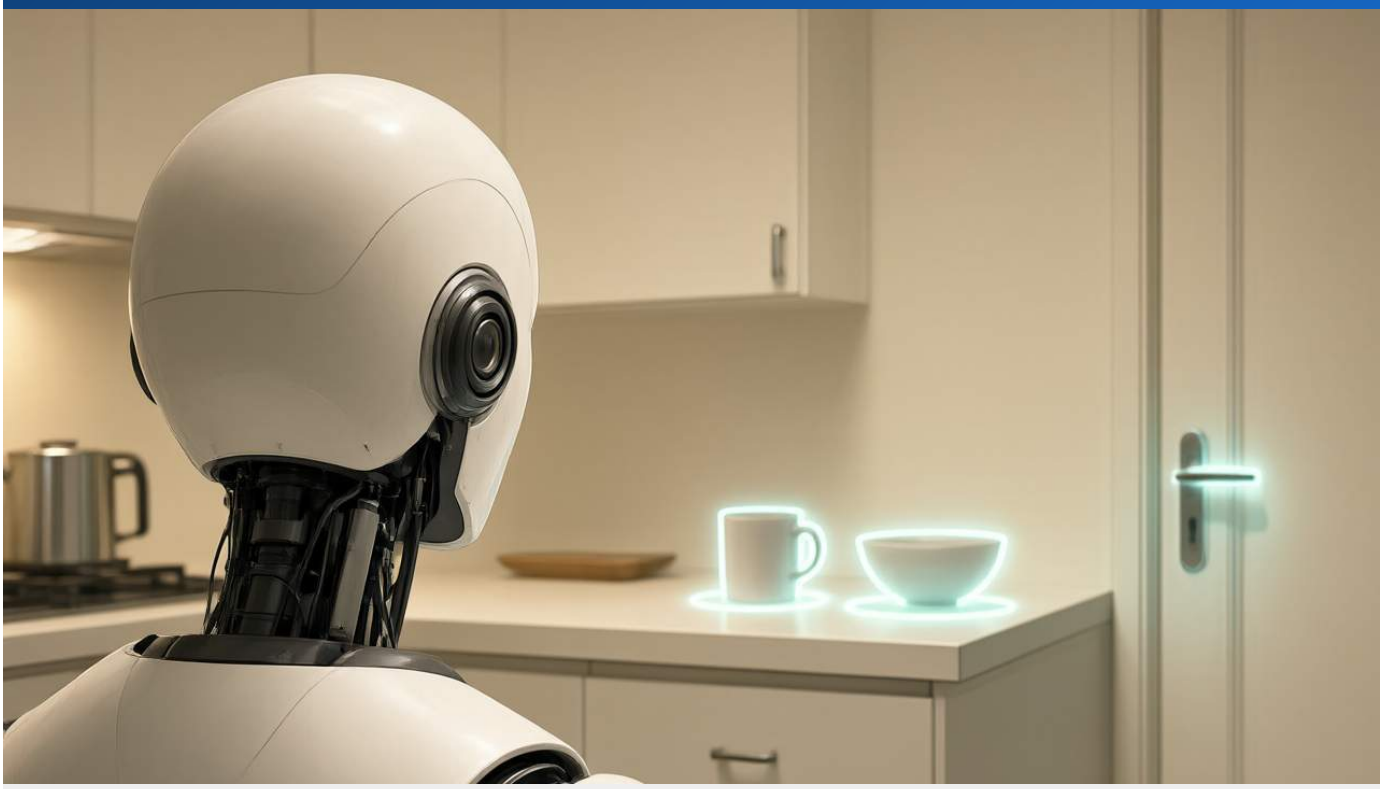
While these results demonstrate lower ventilatory demand, the researchers note that this does not automatically translate to a proportional increase in safe dive duration, as gas use depends on broader environmental circumstances. Future development will focus on posture stabilization and personalization to adapt the system to different users and movements. The goal is to move beyond isolated improvements in kicking effort toward a system designed around the full scope of diving tasks.

Source: https://knowridge.com/2026/11/wearable-underwater-robots-could-help-scuba-divers-breathe-less-air/

Collected: November 07, 2026 | Automated Research System (AI)

#10 GroundingPI: XPENG's 4B-parameter model for embodied perception

Published November 06, 2026 Gasgoo China



OVERVIEW

XPENG, Peking University, and the University of Hong Kong have released GroundingPI, a 4-billion-parameter foundation model for embodied perception. The model outperformed GPT-6 Astra in a 34-benchmark evaluation, scoring 73.68 points compared to 71.54. This development reduces manual teaching costs by achieving higher success rates with significantly less demonstration data.

IN DEPTH

Key Findings

GroundingPI has demonstrated superior performance in embodied perception benchmarks, scoring 73.68 points across 34 public evaluations. This result surpasses the 71.54 points achieved by OpenAI's GPT-6 Astra. In simulations, systems utilizing GroundingPI achieved a higher success rate using only 50% of demonstration data, whereas comparison models required 75% of the data to reach their results.

Technical Details

The model consists of roughly 4 billion parameters and employs a "perception-first" architecture. Unlike traditional models, GroundingPI avoids robot data labeled with joint actions during training. Instead, it utilizes pure perception data across 11 specific capabilities, including:

- General detection
- Dense small-target recognition
- Referential localization

This approach enhances visual grounding, allowing the model to identify both the identity and the precise spatial location of objects within a frame. Architecturally, GroundingPI is designed as a perception-native base for the "fast system" (System 1 of embodiment), rather than serving as a replacement for the general capabilities of the "slow system" (System 2).

Background and Context

The development addresses the adaptation gap encountered when general large models, which are primarily designed for digital scenarios, are applied to physical environments. By focusing on embodied intelligence and physical AI, the research team aimed to bridge the divide between digital processing and physical world perception.

Significance and Outlook

The reduction in required demonstration data suggests a significant decrease in manual teaching costs and improved generalization across different backgrounds and materials. While the research currently remains in the prototype stage, the team has open-sourced the model weights and relevant code to facilitate further development in embodied perception.

Source: https://autonews.gasgoo.com/articles/icv/xpeng-and-universities-unveil-groundingpi-foundation-model-for-embodied-perception-2118547420962770945

Collected: November 07, 2026 | Automated Research System (AI)

#11 Agilink OmniHand: Industrial Trial Results and OmniGlove Pro Specs

Published November 04, 2026 KrASIA China



OVERVIEW

Agilink has demonstrated a dexterous robotic hand capable of completing 72 consecutive industrial operations with a 98% success rate at Wolong Electric. To address the shortage of physical interaction data, the company launched the OmniGlove Pro, a tactile data collection glove designed to bridge the gap between simulation and real-world deployment.

IN DEPTH

Key Findings

Agilink's OmniHand successfully completed a proof-of-concept trial on a production line at Wolong Electric in Shaoxing. The system performed 72 consecutive operations—including material loading, screw fastening, self-checks, and unloading—without real-time human intervention. A full cycle took 8.5 minutes, compared to eight minutes for a skilled worker. The trial reported a 98% task success rate over eight hours of continuous operation.

Technical Details

The most challenging task identified was fastening captive screws, where a one-millimeter hand movement could cause a three-to-four millimeter error at the tool tip due to screw wobble and cable recoil. To mitigate this, the system combined visual and tactile feedback for real-time correction. Agilink utilized reinforcement learning for individual operations and a software agent framework to coordinate the full sequence and reverse failed steps.

To improve training data, Agilink launched the OmniGlove Pro. The fabric glove utilizes a combination of electromagnetic field (EMF) tracking for fingertip positions and inertial measurement units (IMUs) to reduce interference. Densely arranged tactile sensors capture touch signals and hand positions at high frame rates, compensating for positioning errors caused by fabric deformation.

Background & Context

Agilink CEO Qiao Tianjie noted that while conventional grippers handle 70–80% of predictable tasks, dexterous hands are required for the remaining 20–30% of precision-intensive operations. Chief scientist Huang Bidan highlighted that visual datasets alone lack critical physical interaction data, such as shear force and temperature, which often leads to simulation-to-reality failure.

Significance & Outlook

As of October, cumulative production of the OmniHand series exceeded 15,000 units. Agilink intends to scale production into the tens of thousands to stabilize supply chains and reduce costs. While the robotic hands are currently used at Chimelong in Zhuhai, the Wolong Electric station is expected to enter regular production by the end of 2026. Agilink also plans to share its tactile data, manipulation models, and deployment framework with other robot manufacturers and system integrators.

Source: https://kr-asia.com/agilink-launches-tactile-data-glove-after-72-step-robotic-hand-trial

Collected: November 07, 2026 | Automated Research System (AI)

#12 Fysiverse-UniWAM: Unified World Action Model for Robotics

Published November 01, 2026 凤凰网 China



OVERVIEW

Fysics AI and CITLab have developed Fysiverse-UniWAM, a model that integrates autonomous navigation, mobile manipulation, and dexterous operation without relying on large-scale robot pre-training. In 24 real-world tests, it achieved top rankings in navigation and mobile manipulation, with mobile manipulation success rates reaching 80.0%.

IN DEPTH

Key Findings

Fysiverse-UniWAM demonstrated superior performance across 24 real-world tasks using four robot platforms. In 13 MAP navigation tests, the model ranked first in all position error metrics and in 11 orientation error metrics. For mobile manipulation, UniWAM-Scaled achieved a first-place average success rate of 80.0%, surpassing $\pi_{0.5}$ by 17.5 percentage points. In seven fixed-station evaluations, it achieved a 68.9% success rate, trailing $\pi_{0.5}$ by only 2.5 percentage points. In the MAP-Bench benchmark, the model recorded an average position error of 9.85 cm and an average orientation error of 2.30°, reducing errors by 30.1% and 44.0% respectively compared to the strongest external baseline.

Technical Details

The model utilizes a "Mixed-Stream" architecture that shares a unified video DiT and action DiT backbone via a Mixture-of-Transformers (MoT) mechanism. It separates data into two streams: a navigation stream for environment observation and chassis action, and an operation stream for multi-view observation and arm action. To improve precision, the team introduced Manipulation Anchor Pose (MAP) and the MAP-Data dataset, which contains over 1.5 million trajectories totaling approximately 7,500 hours. MAP generates reference docking poses and approach trajectories using HM3D, InteriorGS, and private scene data combined with vision-language models and automatic path planning.

Background and Context

Unlike traditional semantic navigation that only requires reaching a target vicinity, the MAP approach ensures the chassis stops at a specific position and orientation necessary for manipulation. The model's capabilities were demonstrated through complex tasks, including interactive grasping, following human hands to deliver objects, three-layer cup stacking with dual arms, high-precision test tube insertion, and long-sequence coffee preparation.

Significance and Outlook

The team demonstrated that UniWAM-Sim, trained solely on MAP-Data without real robot demonstration data, could be deployed directly to two real platforms with a position error of 18.7 cm and orientation error of 6.34°. This suggests that while large-scale robot pre-training remains important, it is not the only prerequisite for building unified robotic capabilities.

Source: https://original.ifeng.com/c/8xhHJZYQw7o

Collected: November 07, 2026 | Automated Research System (AI)

#13 JTEKT Physical AI: 97.1% Picking Success Rate in CVJ Line

Published November 06, 2026　レスポンス　Japan



OVERVIEW

JTEKT has achieved a 97.1% success rate in random picking processes by implementing Physical AI at its Tado Misaki Plant. The system reduced average cycle times by 16% compared to conventional control methods.

IN DEPTH

Key Findings

JTEKT has completed a verification period for Physical AI integrated into the CVJ production line at the Tado Misaki Plant. The primary result was a picking success rate of 97.1% in random picking operations, representing an improvement of 12.1 percentage points over previous control methods. Additionally, the company recorded a 16% reduction in average cycle times.

Technical Details

The implementation focused on optimizing the random picking process within the CVJ production line. By transitioning from traditional control logic to a Physical AI-driven approach, the system achieved higher precision and faster execution speeds, directly impacting the throughput and reliability of the picking sequence.

Background and Context

The project was conducted as a collaborative effort involving Upstage AI and Karakuri. The verification took place from March 19, 2026, to August 31, 2026. This development was carried out as part of the "Physical AI Development Support Program by AWS Japan," utilizing the program's framework to accelerate the deployment and testing of the AI models in a real-world manufacturing environment.

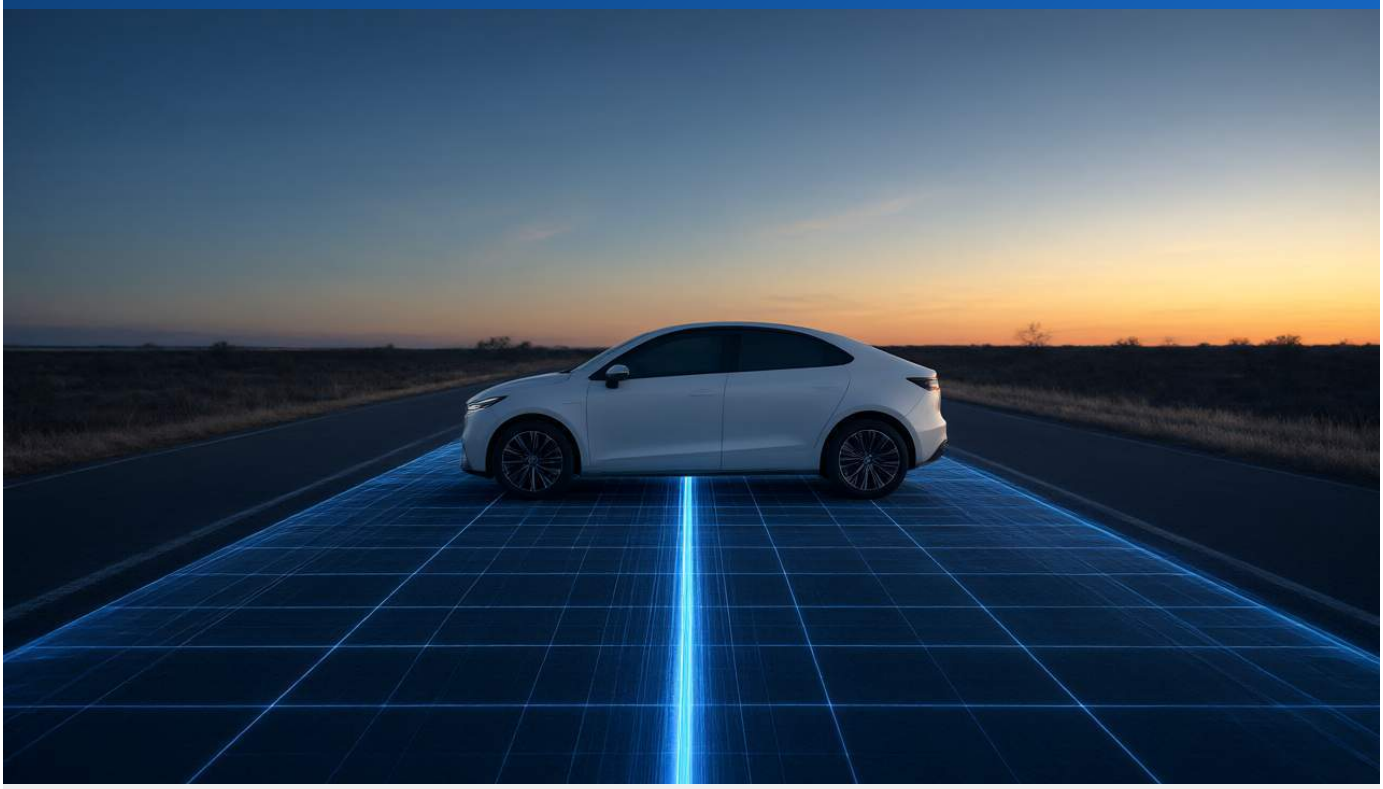
Significance and Outlook

The successful verification at the Tado Misaki Plant demonstrates the efficacy of Physical AI in handling non-deterministic tasks such as random picking. By significantly increasing the success rate and lowering cycle times, the integration of AI into physical robotic controls provides a measurable increase in operational efficiency for CVJ production lines.

Source: https://response.jp/article/2026/11/06/418698.html

#14 ISO/PAS 34506:2026: Qualification of Virtual Test Environments for AVs

Published November 05, 2026 Highways News UK



OVERVIEW

The International Organization for Standardization (ISO) has published ISO/PAS 34506:2026, the first international standard for qualifying virtual test environments (VTEs) for automated vehicles. This framework provides a common method for developers and regulators to validate simulation results, supporting the safe and efficient deployment of automated driving systems.

IN DEPTH

Key Findings

ISO/PAS 34506:2026, titled "Road vehicles — test scenarios for automated driving systems — Qualification of virtual test environments," establishes the first international qualification scheme for virtual test environments (VTEs). The standard provides a consistent framework for assessing and validating virtual testing, ensuring that simulation results are trustworthy and suitable for the safe evaluation of automated driving systems.

Technical Details

The standard provides a qualification framework structured across three distinct levels:

- Performance of the simulation environment
- Process of development of the simulation environment
- Usage of the simulation environment

Developed with research funding from Transport Canada, the standard was co-led by Professor Siddartha Khastgir of Warwick Manufacturing Group (WMG), University of Warwick, and Benoit Anctil from Transport Canada, with support from an international group of experts.

Background & Context

Simulation has become a critical component of safety validation because testing every possible driving scenario on public roads is impractical and potentially unsafe. Prior to this publication, there was no internationally agreed-upon method for judging the trustworthiness of a virtual test environment. ISO/PAS 34506:2026 aligns with recently adopted global regulatory frameworks, specifically United Nations UN Regulation No. 185 (UN R185) and Global Technical Regulation No. 26 (GTR 26). These regulations require manufacturers to provide safety evidence using a combination of virtual, track, and real-world testing.

Significance & Outlook

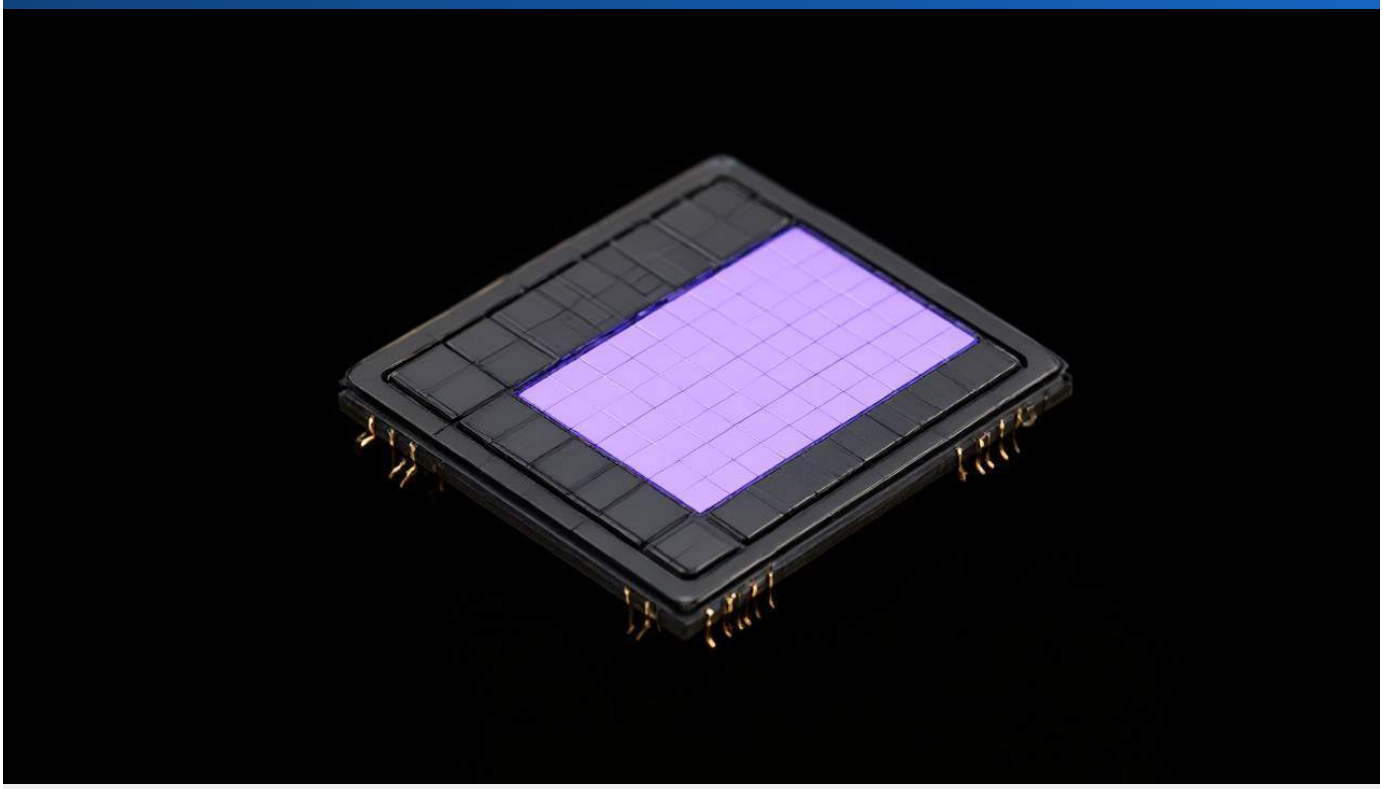
By establishing a common method for qualifying VTEs, the standard supports the evidence submitted for UN R185 type approval without replacing the regulation's existing requirements. While the primary focus is on automated driving for road vehicles, the standard is designed to be transport-sector agnostic. Consequently, its principles can be applied to the validation of autonomous systems in the aviation and maritime sectors. This standardization is expected to increase confidence in simulation-based testing and accelerate the safe deployment of autonomous technology.

Source: https://highways-news.com/first-international-standard-for-trusted-simulation-for-automated-vehicles-published/

Collected: November 07, 2026 | Automated Research System (AI)

#15 Aisin and Tohoku University: 16nm AI SoC with STT-MRAM Specs

Published November 06, 2026　レスポンス（Response.jp）　Japan



OVERVIEW

Aisin and Tohoku University have developed the world's first 16nm FinFET AI SoC featuring 32MB of embedded STT-MRAM. This integration eliminates the need for external memory, such as DRAM or SSDs, for AI processing. The development addresses critical bottlenecks in energy efficiency and boot times for edge AI devices.

IN DEPTH

Key Findings

Aisin and Tohoku University have jointly developed a 16nm FinFET AI System-on-Chip (SoC) that integrates 32MB of embedded STT-MRAM. This architecture enables an edge AI processing system that operates without the requirement for external memory components like SSDs or DRAM.

Technical Details

The SoC utilizes a 16nm FinFET process and incorporates a significant amount of embedded non-volatile memory (32MB STT-MRAM) directly onto the chip. By consolidating memory and processing on a single die, the system removes the necessity for data transfer between the processor and external memory modules.

Background and Context

The development responds to the rapid expansion of AI technologies, including image recognition and generative AI, into edge devices such as IoT equipment, cameras, robots, and automobiles. Previously, the increasing size of AI models created two primary technical hurdles:

- **Efficiency:** Data transfer between the processor and external memory significantly degraded processing speeds and energy efficiency.
- **Latency:** System boot times were delayed because the OS and AI models had to be loaded from external memory upon power-up.

Significance and Outlook

By eliminating external memory dependencies, this AI SoC reduces the energy overhead associated with memory access and solves the slow startup issues inherent in traditional edge AI architectures. This advancement allows for more efficient deployment of large AI models in resource-constrained edge environments.

Source: https://response.jp/article/2026/11/06/418694.html