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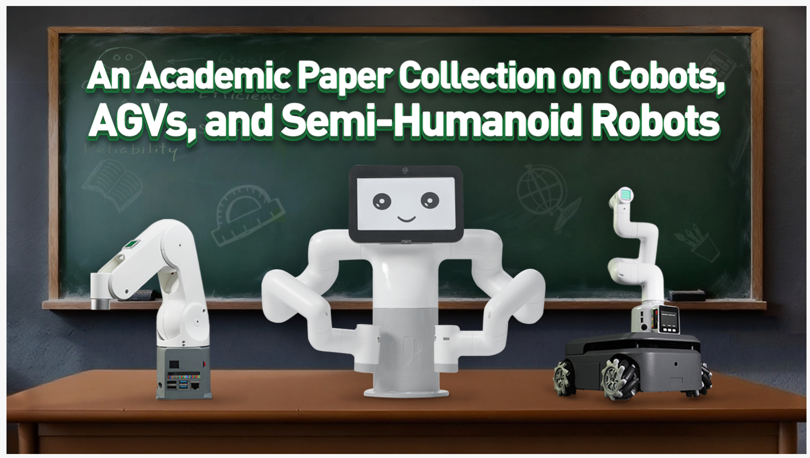
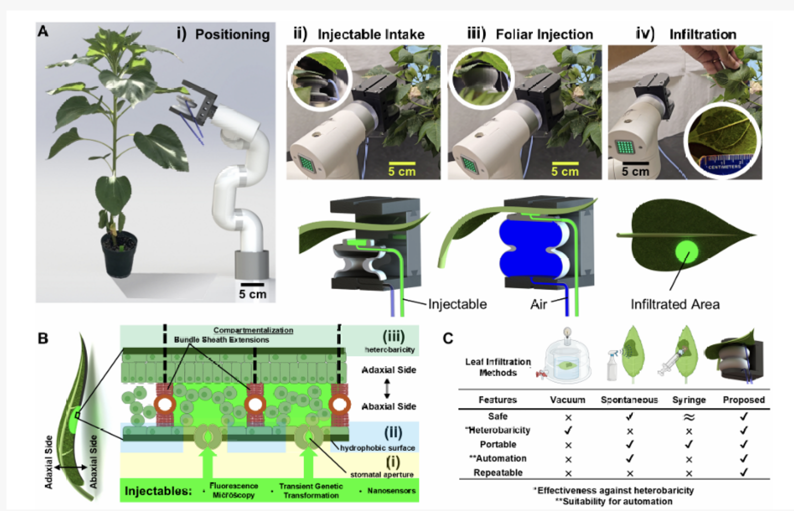
2025 Academic Achievements: Top Universities Advance Research with Elephant Robotics' Cobots, AGVs and Humanoid Robots

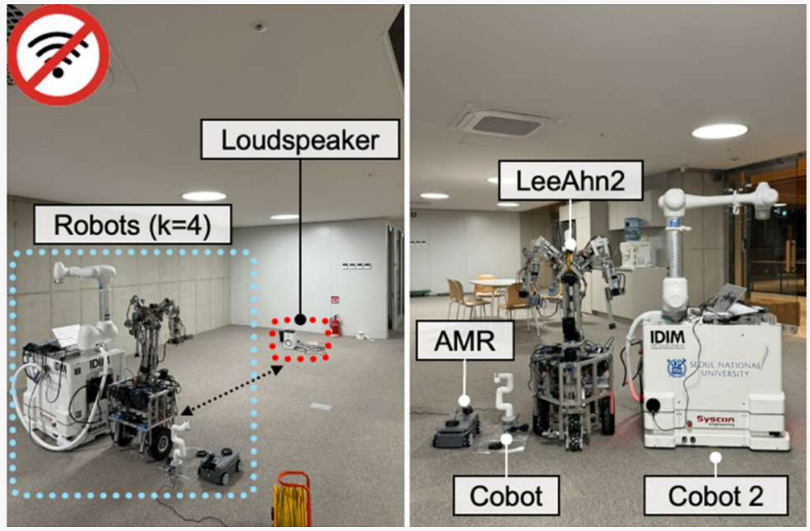
Elephant Robotics showcases 2025 academic breakthroughs, with Cobots, AGVs, and humanoid robots powering research across top global universities.





SHENZHEN, GUANGDONG, CHINA, December 17, 2025 /EINPresswire.com/ -- With the mission of "Enjoy Robots World," Elephant Robotics empowers global innovation by delivering reliable, open-source, scalable, and cost-effective robotic platforms. Rather than conducting research itself, the company provides practical tools that enable researchers to build, test, and share breakthroughs more efficiently. Today, Elephant Robotics unveils a curated collection of academic achievements featuring its collaborative robots (Cobots), automated guided vehicles (AGVs), and humanoid robots, developed in partnership with leading institutions including Cornell University, the University of Tokyo, Seoul National University, the University of Michigan, New York University, the University of Waterloo, and Waseda University. The collection highlights real-world applications of the company's 6-DOF robotic arms—the myCobot and myPalletizer series—alongside the mobile robot myAGV and semi-humanoid myBuddy 280 throughout 2025.

In 2025, approximately 100 academic papers employed Elephant Robotics' robots as core research tools, advancing progress across industry, agriculture, logistics, education, healthcare, commerce, and smart home services. Featuring 12 curated studies, the collection offers an accessible and authoritative reference for tracking the latest innovations shaping robotics and its broader industrial applications. The following section highlights 4 representative papers in detail.



Topic: In situ foliar augmentation of multiple species for optical phenotyping and bioengineering using soft robotics
Authors: Mehmet Mert Ilman, Annika Huber, Anand K. Mishra, Sabyasachi Sen, Fumin Wang, Tiffany Lin, Georg Jander, Abraham D. Stroock and Robert F. Shepherd
Universities: Cornell University, Manisa Celal Bayar University
Abstract: This study addresses key challenges in precision agriculture, where traditional foliar delivery can damage leaves and lacks consistency. To solve this, the researchers developed a soft robotic leaf gripper mounted on the 6-DOF robot arm myCobot 280 M5, which provided automatic positioning and enabled repeatable, stamp-based injections. Using the arm's gravity-compensation teaching mode, the team easily demonstrated motions and automated the entire process. The system achieved a success rate of over 91% with minimal leaf damage, enabling reliable in vivo phenotyping and gene expression studies. This work shows how compact, affordable robotic arms can improve plant bioengineering, support high-throughput phenotyping, and push agricultural robotics toward more precise and automated solutions.

Topic: Dynamic inaudible frequency shifting communication for multi-robot collaboration in manufacturing
Authors: Semin Ahn, Dohyeon Kim and Sung-Hoon Ahn
University: Seoul National University
Abstract: This paper presents a dynamic inaudible frequency-shifting method for decentralized robot-to-robot communication using 18–22 kHz sound. The system was validated using multiple heterogeneous robots, including our autonomous mobile robot myAGV and 6-DOF collaborative robot myCobot 280 Pi, which served as Listener robots receiving and executing commands through the acoustic channel. The approach eliminates reliance on WiFi or Bluetooth networks and remains robust against noise and environmental interference. Experiments conducted with heterogeneous robots across one-to-one, one-to-two, and one-to-multiple configurations demonstrate communication accuracy above 97.5% at distances up to 4 meters, with minimal loss in noisy environments. The method offers a scalable, interference-resistant solution for real-time multi-robot collaboration in flexible manufacturing and network-limited settings.

Topic: Soft-Rigid Hybrid Revolute and Prismatic Joints Using Multilayered Bellow-Type Soft Pneumatic Actuators: Design, Characterization, and Its Application as Soft-Rigid Hybrid Gripper

Authors: Peter Seungjune Lee, Cameron Sjaarda, Run Ze Gao, Jacob Dupuis, Maya Rukavina-Nolsoe and Carolyn L. Ren
University: University of Waterloo
Abstract: This study presents the development of soft-rigid hybrid (SRH) joints using multilayered bellow-shaped soft pneumatic actuators (MBSPAs) to improve robotic system performance. The researchers developed both a revolute and a prismatic SRH joint and integrated them into a 3-point soft-rigid hybrid gripper mounted on the 4-axis collaborative robotic arm myPalletizer 260. Encased in rigid structures, the design improves payload capacity and durability. Experiments showed higher force output and resilience, highlighting the potential for agricultural automation, particularly in harvesting delicate fruits. This research not only advances the capabilities of soft robotics but also paves the way for greater efficiency and reliability in a variety of industrial applications.

Topic: Find the Fruit: Designing a Zero-Shot Sim2Real Deep RL Planner for Occlusion Aware Plant Manipulation
Authors: Nitesh Subedi, Hsin-Jung Yang, Devesh K. Jha and Soumik Sarkar
University: Iowa State University
Abstract: This study focuses on the challenges of robotic manipulation in complex and cluttered agricultural environments, specifically targeting the task of fruit localization and occlusion resolution. Utilizing the dual-arm semi-humanoid robot myBuddy 280, the authors developed an end-to-end deep reinforcement learning (RL) framework capable of adeptly interacting with deformable plants. This approach enables the robot to uncover hidden fruits by learning to manipulate foliage without needing precise geometric modeling. The research demonstrates a significant advancement in automation for agricultural robotics, paving the way for scalable, perception-driven solutions that can operate effectively in dynamic and unpredictable settings, enhancing productivity and efficiency in the agricultural sector.

This curated collection showcases groundbreaking academic and scientific research that is accelerating progress in both scientific discovery and real-world applications. Spanning precision agriculture, soft robotics, explainable navigation, embodied AI, food manufacturing, healthcare assistance, and advanced teleoperation, these studies highlight the versatility and impact of Elephant Robotics' robotic ecosystem across a wide range of fields. By enabling reliable automation, intuitive interaction, and accessible experimentation, the works not only validate the performance of the myCobot, myPalletizer, myAGV, and myBuddy series but also demonstrate how affordable robotics can drive innovation worldwide. As robotics continues to evolve at a rapid pace, Elephant Robotics’ robots are increasingly positioned as a practical foundation for researchers, educators, and industry practitioners exploring the next generation of intelligent robotic solutions.

For a complete collection of academic papers, please click on the following link: https://shop.elephantrobotics.com/blogs/news/2025-academic-achievements-reviews-top-universities-advance-robotics-research-with-elephant-robotics-cobots-agvs-and-humanoid-robots .

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