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Puncture Robotic Unveils AI-Powered HAIRO Hair Transplant Robot at WCHR 2026

China's First NMPA Class III-Certified Hair Transplant Robot Combines AI, Computer Vision and Robotic Automation to Advance Precision Hair Restoration

By **Ankit Kankar** | September 13, 2026



Image Courtesy: Public Domain

Artificial intelligence is rapidly reshaping medical aesthetics, and hair restoration is undergoing a significant technological transformation. At the 14th World Congress for Hair Research (WCHR 2026),

Puncture Robotic attracted international attention with the debut of its HAIRO Hair Transplant Robot and its vision for AI-powered hair transplantation.

As China's first NMPA Class III-certified hair transplant robot, HAIRO integrates artificial intelligence, computer vision and robotic automation across the hair restoration workflow, from hair assessment and surgical planning to robotic execution and postoperative management.

Puncture Robotic's AI-powered ecosystem begins with an intelligent hair detection device that measures and classifies a patient's degree of hair loss. An AI mini-program can then generate personalized visual simulations to help patients better understand potential post-transplant outcomes.

In the operating room, HAIRO supports physicians with AI-assisted preoperative planning and real-time procedural adjustment. Its dynamic machine-learning algorithm analyzes information collected during follicular extraction and adjusts operating parameters according to differences in follicular structure and scalp conditions.

The system combines 20-megapixel binocular cameras with millisecond-level image-processing algorithms. According to Puncture Robotic, it can achieve sub-surface positioning accuracy of up to 0.1 millimeters, supporting precise follicular-unit extraction while helping reduce damage to surrounding tissue.

One of HAIRO's core technologies is its proprietary "Single-Hair Skipping" algorithm. The system is designed to identify and prioritize multi-hair follicular units while selectively skipping single-hair units when appropriate. Company data indicate that the system can achieve a multi-hair follicular-unit extraction rate of up to 95%.

By prioritizing follicular units containing multiple hairs, the technology may help physicians improve visual density while reducing the number of grafts required from the donor area.

HAIRO can process up to 2,400 follicles per hour and supports extraction needles ranging from 0.7 millimeters to 1.0 millimeter.

"I was impressed by the progress robotic hair transplantation technology has made," said Dr. Guanzhou Zhu, Founder of DCDC Hair Transplant Hospital in Taiwan. "The system's speed, stability and ability to operate with ultra-fine needles demonstrate its potential to become an effective clinical partner for experienced surgeons."

Rather than replacing physicians, HAIRO is designed to assist with repetitive and precision-intensive stages of surgery, allowing surgeons to focus more closely on treatment planning, aesthetic design and patient care.

According to Puncture Robotic, the system maintains a follicular-unit damage rate below 7.5% under specified operating conditions. Its ultra-fine needle system is also designed to reduce tissue disruption and bleeding, potentially supporting a smoother postoperative recovery.

Puncture Robotic is also preparing to introduce a long-hair extraction version of HAIRO. The upcoming system is designed to perform follicular-unit extraction without requiring patients to fully shave the donor area, addressing a common concern for patients seeking a more discreet treatment and recovery experience.

Following a recent multi-million-dollar Series B financing round led by a globally leading AI technology company, Puncture Robotic is advancing product development, international expansion and regulatory pathways for FDA clearance and CE certification.

Through HAIRO, Puncture Robotic aims to support a more standardized, data-driven and physician-led approach to intelligent hair restoration.

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