

Lenovo, NVIDIA and Chooch offer AI Vision Solutions for Remote Patient Monitoring

Empowering Health Through AI Vision: Transforming Remote Patient Monitoring

Summary

Hospitals are adopting computer vision technology for remote patient monitoring due to growing patient safety concerns, particularly regarding patient falls. Traditional methods, like in-person regular checks, may not detect immediate alerts or other precursor behavior.

Patient falls incur significant annual costs for healthcare facilities, including direct and indirect expenses. These falls prolong hospital stays, disrupt patient flow, and expose hospitals to litigation and higher insurance premiums, leading to revenue loss.

Challenge

The modern hospital faces a high demand for top quality patient care, has high costs and requires to keep their information secure. There is also a limited workforce and nurses are vital for patient safety, but heavy workloads limit constant supervision.

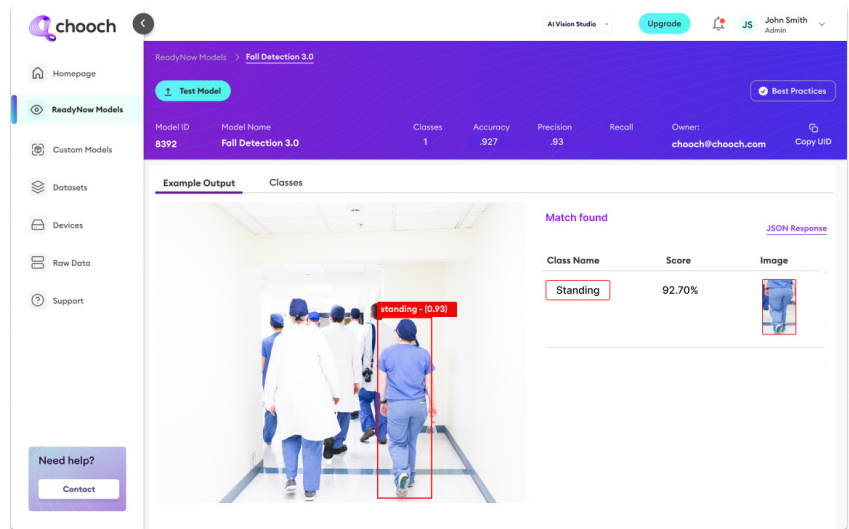
Human observation has limitations due to fatigue, distractions, and overload. Hospital environments, especially poorly visible, poorly lit, or crowded areas, make patient safety monitoring challenging.

Additionally, the high demand of healthcare services places importance on fast diagnosis and monitoring. Hospitals need to implement new solutions to keep track of patient needs and the facilities need to modernize to give patients the best environment for a full recovery.

Solution

Lenovo, in partnership with Chooch, develops computer vision solutions that can be deployed at the edge for healthcare to enhance employee and patient safety, reduce costs, and offer:

- Real-time alerts for rapid incident response.
- Continuous learning for improved image recognition accuracy.
- Pre-trained AI models for safety and security applications for faster deployment.
- Secure data options via private cloud or on-premise deployment for data privacy and security.
- Smart analytics to identify patterns of high-risk areas and track effectiveness of safety measures.
- Real-time monitoring of multiple video streams for instant inferencing.



The Chooch Platform provides a range of products including:

AI Vision Studio: typically hosted by Chooch, this interface offers users the ability to create datasets, train models, manage devices, and other pertinent management tasks.

Edge Inference Engine: typically deployed on-premises, this component leverages models for inference at the edge and provides alerts back to Chooch Smart Analytics or to a third-party system via integration.

ReadyNow Models: Chooch provides pre-trained detection models for the most common safety and security use cases such as slip and falls, weapons, fire and smoke, personal protective equipment (PPE), and more. These models run within the Edge Inference Engine.

Smart Analytics: typically hosted in the Chooch cloud, Smart Analytics delivers an easy-to-use Tableau-lite dashboard for customers to review detections.

ImageChat: Chooch's Generative AI model combines computer vision and language for image-to-text visual question answering. Trained on over 40 million classes, it provides image context and analysis for a wide range of use cases. This model runs within the Edge Inference Engine.

Results

This platform equips physicians with critical insight helping, for example, radiologists identify cellular anomalies and tumors in a shorter time frame, automated logs monitoring surgical and anesthetic procedures and instrument usage, and providing automated remote monitoring of patients including treatments and fall prevention. Chooch's platform also improves data and facility security preventing breaches.

Using Chooch's user-friendly Smart Analytics Dashboard, customers can review detections and measure results with its advanced analysis features such as heat mapping and graphs. Furthermore, our AI Vision platform can send real-time alerts to Smart Analytics or other business intelligence systems when detections occur, ensuring swift response and action.

Validated Architecture

Chooch’s AI Vision Platform offers versatile deployment options, catering to the specific needs of our customers. Customers can choose to deploy it in the cloud, on-premise, or in a hybrid environment.

In a hybrid setup, Chooch Cloud handles management tasks, while the Chooch Edge Inference Engine, capable of running on either baremetal or virtualized infrastructure, processes video streams from selected cameras for detections.

Design Components

	Servers	Cameras	Accelerator	Memory	Software
Edge	ThinkEdge SE360 V2	10 cameras with up to 3 models	NVIDIA A2	RAM: 16GB or greater SSD: 256GB or greater	Chooch AI Vision Studio
	ThinkSystem SE450 ThinkSystem SE455 V3	40 cameras with up to 3 models	NVIDIA A2 NVIDIA L4	RAM: 32GB or greater SSD: 256GB or greater	Chooch AI Vision Studio
	ThinkSystem SR655 V3	80 - 150 cameras with up to 3 models	NVIDIA A100 80Gb	RAM: 32GB - 64GB or greater SSD: 512GB or greater	Chooch AI Vision Studio

Resources

- [Explore Lenovo’s AI Innovators Program](#)
- [Explore the Lenovo HPC and AI Innovation and Briefing Center](#)
- [Lenovo Validated Design for AI Infrastructure on ThinkSystem Servers](#)
- [Chooch Website](#)
- [Chooch - Healthcare Solutions](#)
- [Lenovo-NVIDIA Alliance](#)

Why Lenovo

Focused on a bold vision to deliver smarter technology for all, Lenovo is developing world-changing technologies that create a more inclusive, trustworthy, and sustainable digital society. By designing, engineering and building the world’s most complete portfolio of smart devices and infrastructure, we are also leading an Intelligent Transformation to create better experiences and opportunities for millions of customers around the world.

Why NVIDIA

NVIDIA pioneered accelerated computing to tackle challenges no one else can solve. Our work in AI and the metaverse is profoundly impacting society and transforming the world’s largest industries—from gaming to robotics, self-driving cars to life-saving healthcare, climate change to virtual worlds where we can all connect and create.



© 2023 Lenovo. All rights reserved.

Availability: Offers, prices, specifications, and availability may change without notice. Lenovo is not responsible for photographic or typographical errors.

Warranty: For a copy of applicable warranties, write to Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services.

Trademarks: Lenovo, the Lenovo logo, ThinkSystem, ThinkAgile are trademarks or registered trademarks of Lenovo. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, the Intel logo and Xeon are trademarks of Intel Corporation or its subsidiaries. NVIDIA, the NVIDIA logo are trademarks and/or registered trademarks of NVIDIA Corporation in the U.S. and other countries.