NVIDIA

INTELLIGENCE FOR SMART HOSPITALS

IoT Sensors Improve Efficiency in Hospitals

> *"NVIDIA Clara™ made smart hospital at the edge possible, enabling our customers to increase staff productivity by over six-fold, saving millions of dollars in staffing costs while improving patient care."*

— **Andrew Gostine,** MD, CEO of Artisight

Hospitals are under constant pressure to increase productivity, reduce costs, and improve patient outcomes.

To address these challenges, the hospitals of the future will have their own eyes and ears that utilize data to automate event orchestration and improve patient outcomes.

Artisight's AI platform, designed by physicians and healthcare operational experts, provides insights that were previously lacking to address modern hospital needs. Artisight's AI solutions are powered by NVIDIA AI Enterprise and NVIDIA Clara — a smart hospital application framework.

These solutions aggregate data from a variety of sensors to create an intelligent Internet of Things (IoT) network within hospitals' existing IT infrastructure. They were designed to be rapidly deployed in a multitude of medical settings and use cases, including fall prevention, remote nurse assistants, hand hygiene compliance, operating room coordination, and clinic coordination.

By focusing AI on the right problems, hospitals can access real-time data to improve productivity while protecting patient privacy and ensuring HIPAA compliance.
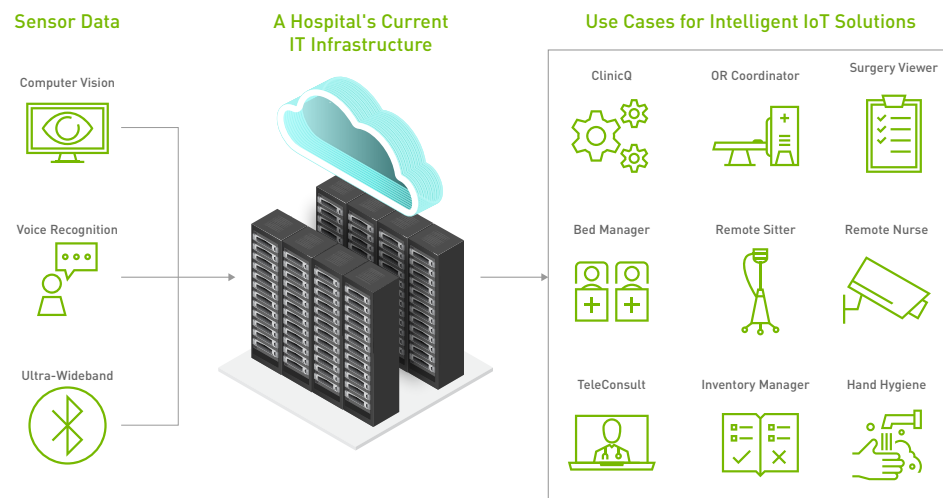
ARTISIGHT

Artisight's intelligent IoT sensor platform combines AI and computer vision to improve patient care and safety while raising operational efficiency.

INDUSTRIES

> Healthcare

> Life sciences

> Smart hospitals

CHALLENGES

> Operational efficiencies

> Limited medical resources

> Clinical staff shortages

> Limited capacity to leverage medical data to improve care

FEATURED PRODUCTS

> Remote Sitter

> Operating Room Coordinator

> Remote Nurse

RESULTS

> Seventy-eight percent fewer patient falls with Artisight Remote Sitter

> Five percent uptick in procedures with the Operating Room Coordinator solution

NVIDIA PREFERRED PARTNER

Figure 1. Artisight end-to-end solution, powered by NVIDIA AI and NVIDIA Clara
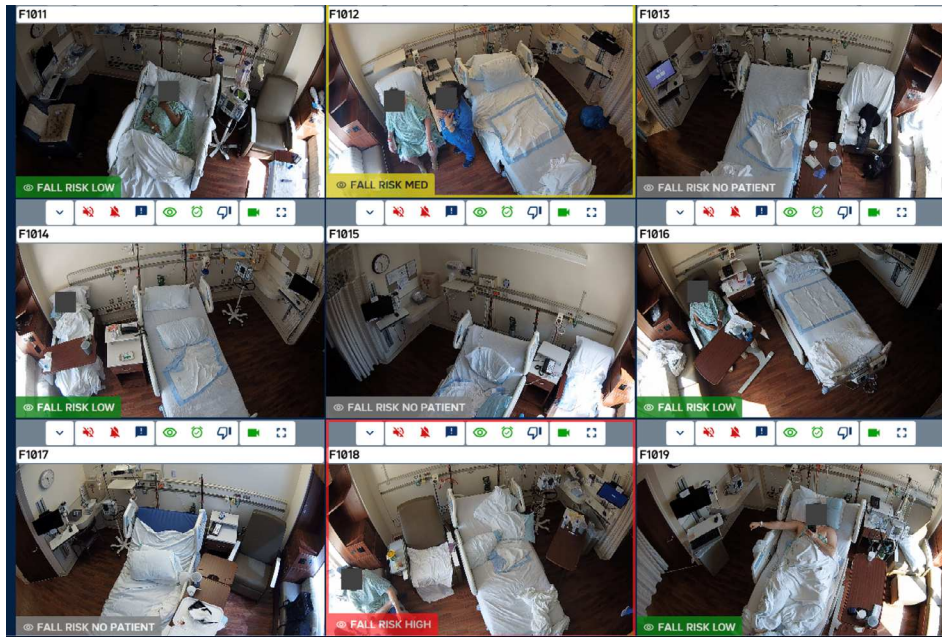
Remote Sitter

Artisight's Remote Sitter solution takes advantage of NVIDIA Clara to protect patients and staff while lowering costs by millions of dollars. This solution allows a constellation of high-definition pan-tilt-zoom cameras to monitor multiple patients simultaneously through the use of AI. In addition, clinicians can verbally communicate with their patients without having to enter the room.

Benefits:

> Privacy button to turn off video feed for greater patient and staff autonomy
> Reduced patient falls and one-to-one sitter costs with remote monitoring
> Reduced patient contact decreases PPE consumption
> More frequent clinician check-ins with patients
> More efficient bed management with real-time status dashboards

Features:

> Mobile and fixed computer vision-enabled object detection
> Audio with two-way push-to-talk functions
> The ability to monitor up to 12 patients on one screen
> Intuitive on-screen controls for responsive pan, tilt, and zoom
> Automated alarms and prerecorded patient alerts
> Integration with any API-friendly electronic health record (EHR)

CLINICQ

Figure 2. A video analytics solution is used to monitor the beginning and the end of surgeries to maximize the daily numbers.
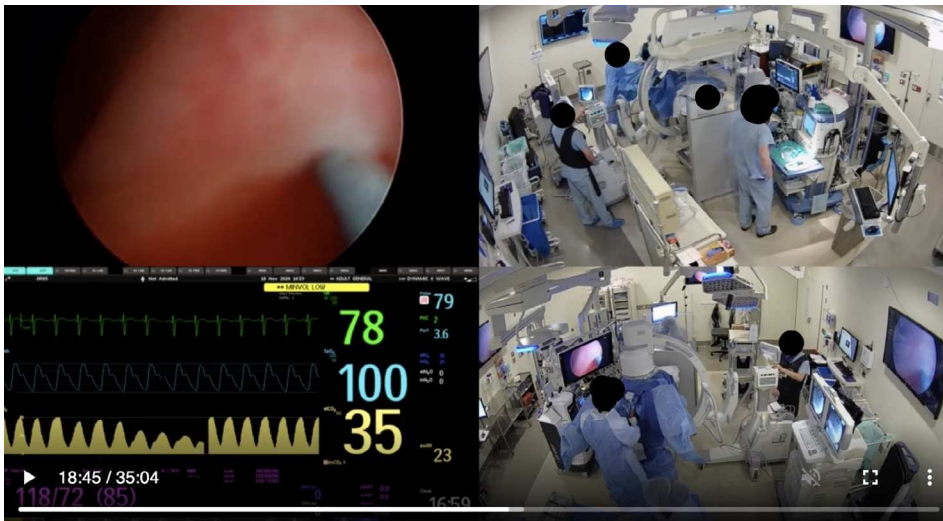
NVIDIA SOFTWARE PRODUCTS USED

> NVIDIA AI Enterprise
> NVIDIA Clara SDK
> DeepStream SDK
> NVIDIA® TensorRT™
> PyTorch
> NVIDIA Triton™ Inference server

NVIDIA HARDWARE

> NVIDIA GPUs

REMOTE SITTER

Figure 3. Video analytics solutions and body pose estimation are used to monitor patient behavior and prevent falls.

Operating Room Coordinator

This integrated foundation of technologies, powered by NVIDIA Clara, enhances communication and efficiency by 10X to enable OR optimization in multiple dimensions, including time, instrument utilization, staffing and documentation. Management software gives clinicians real-time access to EHR data, while ultra-wideband sensors, computer vision cameras, and microphones reduce the burden of manual data collection.

OR Coordinator Benefits:

> Computer vision data capture
> Enhanced patient privacy with video-enabled instruments that only record while tools are in use
> Reduced documentation burden
> Management software with real-time EHR integration enables automated documentation, notifications, KPI reports, and patient family notifications
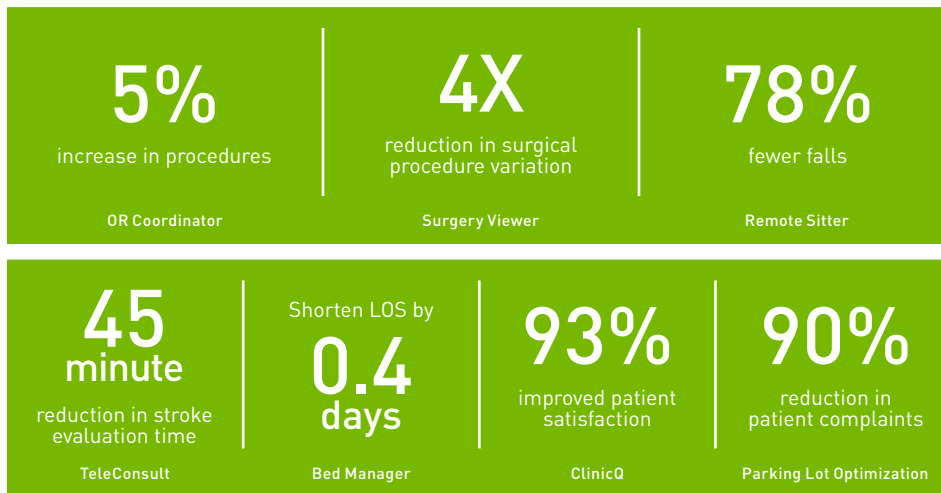
Surgery Viewer Benefits:

> The ability for surgeons to review procedures with colleagues
> Standardized surgical performance and review resources
> Built on the same infrastructure for OR Coordinator
> HIPAA compliance

OR COORDINATOR

Figure 4. A video analytics solution is used to standardize surgical instruments and maximize profit.

A Safer, More Efficient Healthcare Experience

5% increase in procedures	**4X** reduction in surgical procedure variation	**78%** fewer falls
OR Coordinator	Surgery Viewer	Remote Sitter

45 minute reduction in stroke evaluation time	Shorten LOS by **0.4 days**	**93%** improved patient satisfaction	**90%** reduction in patient complaints
TeleConsult	Bed Manager	ClinicQ	Parking Lot Optimization

More than 40 hospitals have deployed Artisight's solution to improve patient care, organizational operations, and financial performance. With automated monitoring and logging of medical data, healthcare professionals can focus on what they do best—caring for patients.

Artisight Deploys Edge Services on NVIDIA AI Enterprise

Running Artisight on NVIDIA AI Enterprise helps streamline application deployment in mission-critical healthcare environments and increases operational efficiency.

With NVIDIA's proven AI containers and frameworks, partners like Artisight can swiftly deploy new AI-powered programs. In addition, partners benefit from NVIDIA's global support to keep projects on track to deploy anywhere—from enterprise data centers to the public cloud.

By virtualizing key resources such as processing power and network bandwidth, NVIDIA's AI-ready platform helps healthcare providers achieve higher utility for GPUs and lower total cost of ownership.

With NVIDIA AI Enterprise in place, Artisight's customers can start using GPUs in their legacy environment without having to change their administration practices.

Artisight on NVIDIA Clara

Artisight uses end-to-end encryption to source and aggregate sensor data (video feeds, ultra-wideband, RFID, and voice recognition) from across a healthcare system. Using Clara, Artisight develops intelligent, HIPAA-compliant solutions that solve healthcare's biggest workflow and resource optimization challenges.
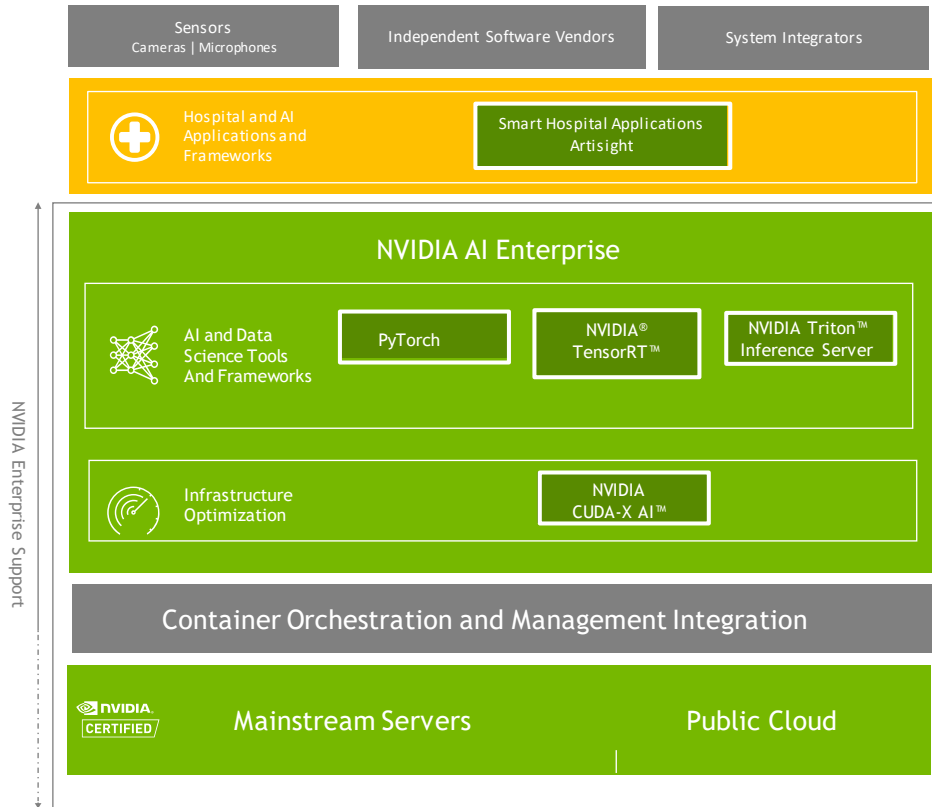
Figure 5. The GPU-accelerated intelligent video AI framework is comprised of the Artisight product suite, NVIDIA AI Enterprise tools and frameworks, and NVIDIA CUDA-X AI.

The NVIDIA Clara application framework utilizes smart sensors and multimodal AI to improve patient care, operational efficiency, and patient and clinician safety in healthcare facilities. By optimizing its end-to-end intelligent video AI solution on NVIDIA Clara and NVIDIA enterprise GPUs, Artisight significantly improves operational efficiency and patient care.

With NVIDIA Clara and its ecosystem partners, smarter and safer healthcare is a reality.

Ready to Get Started?

Find out more about Artisight at **www.artisight.com** or email the Artisight sales team at **sales@artisight.com**

Find out more about NVIDIA Clara at **www.nvidia.com/en-us/clara/smart-hospitals**