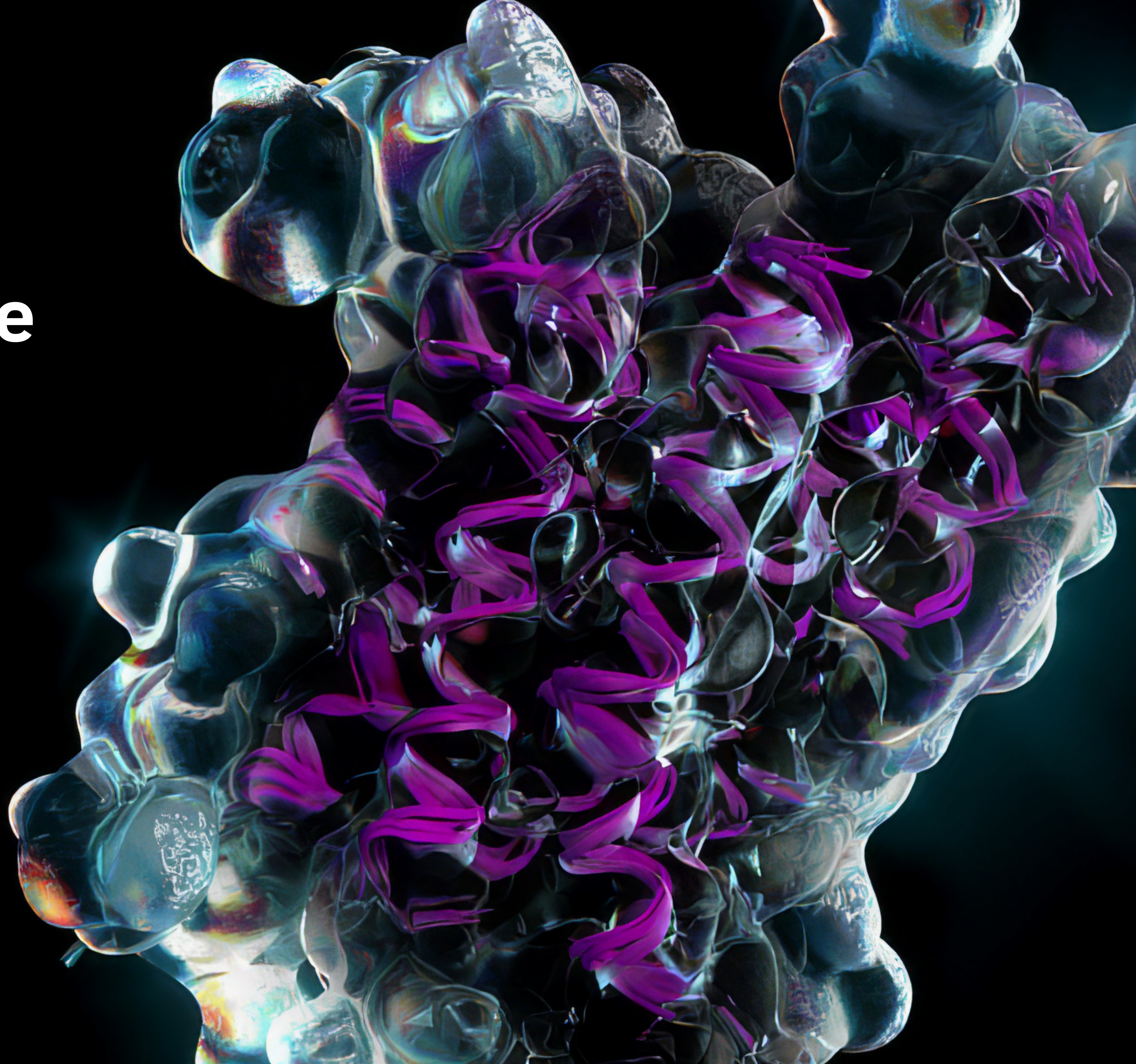# NVIDIA Healthcare Life Sciences

Reshaping the Future of Human Health

By bringing powerful AI and accelerated computing to the frontlines of medicine, NVIDIA and our partners are forging new advancements—and a more promising future—in human health. Together, we're driving transformation across three pillars:

Digital Biology, accelerating genomics and biopharma R&D with generative AI, multi-scale biology, molecular simulation, self-driving labs, digital twins, and biomanufacturing

Digital Health, reimagining clinical care with AI assistants that reduce administrative burden, close care gaps, and enable proactive patient monitoring from anywhere

Digital Devices, redefining diagnostics and treatment with AI-powered imaging, simulation-trained robotics, and real-time surgical guidance

Deep collaboration across these pillars enable the breakthrough solutions that change how disease is detected, how treatments are developed, and how care is delivered—setting a new standard in human health, where technology and expertise unite for lasting impact.

From detection to diagnosis to treatment and beyond, NVIDIA technologies are accelerating, enhancing, and reimagining every stage.
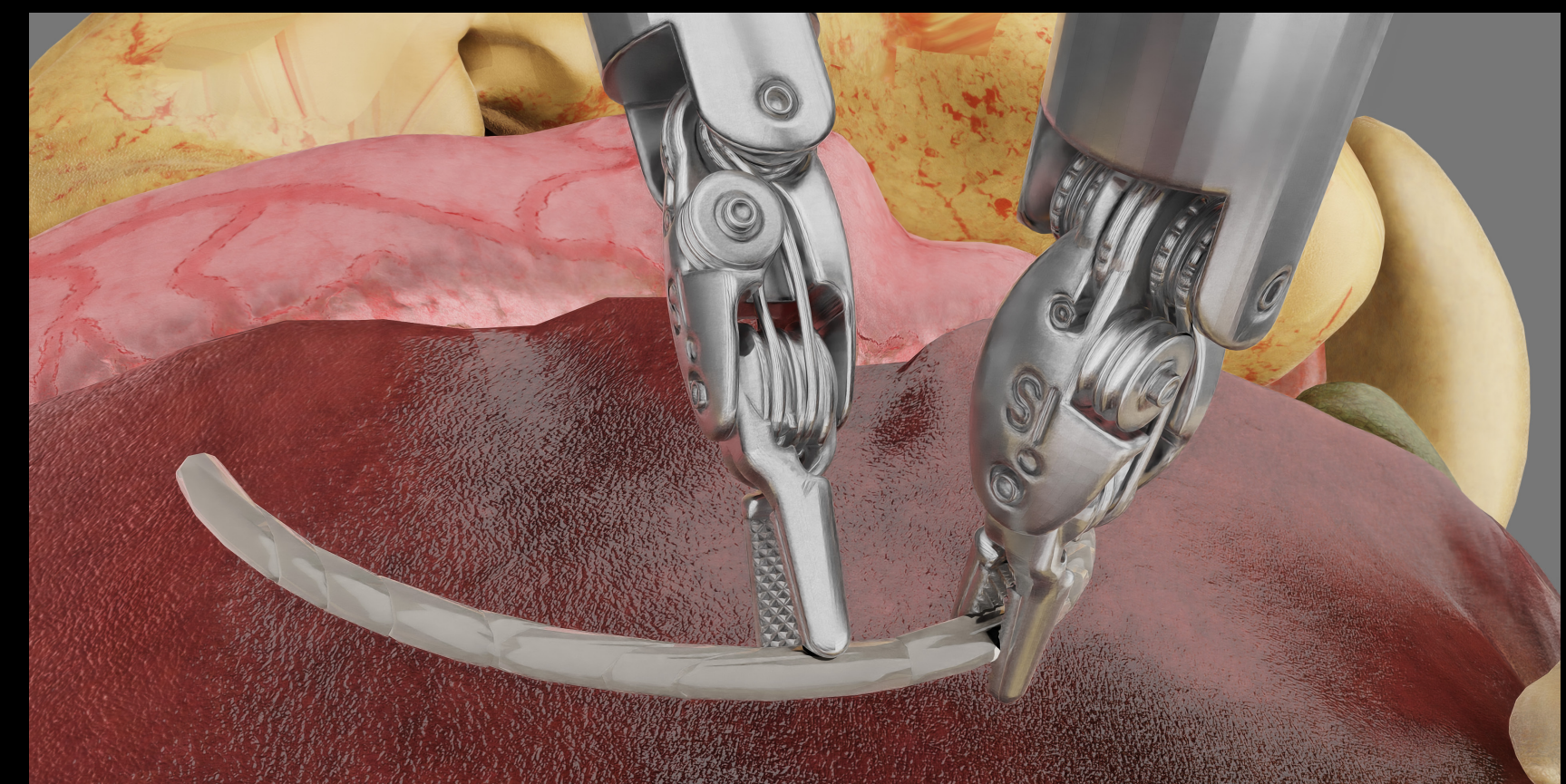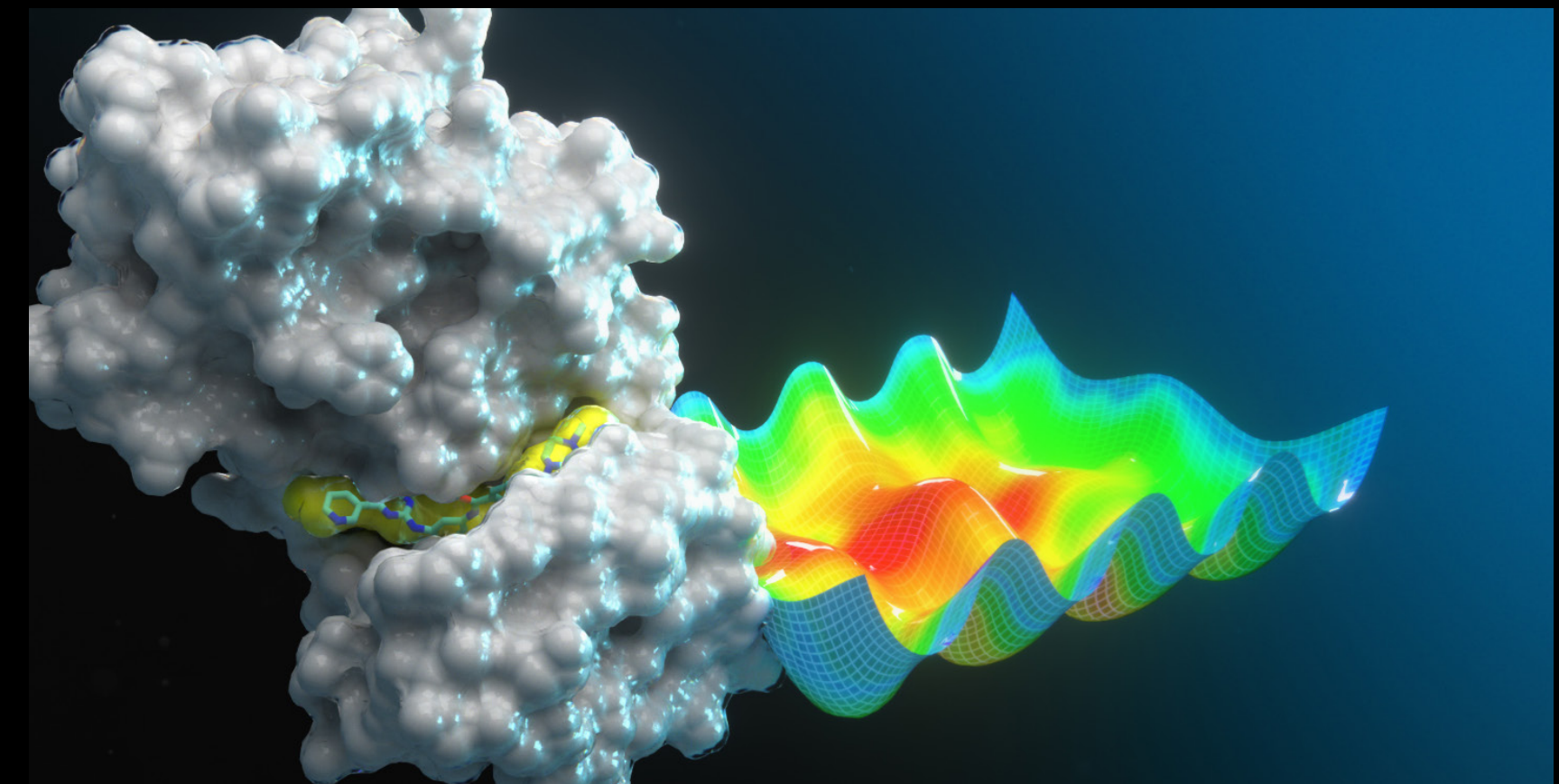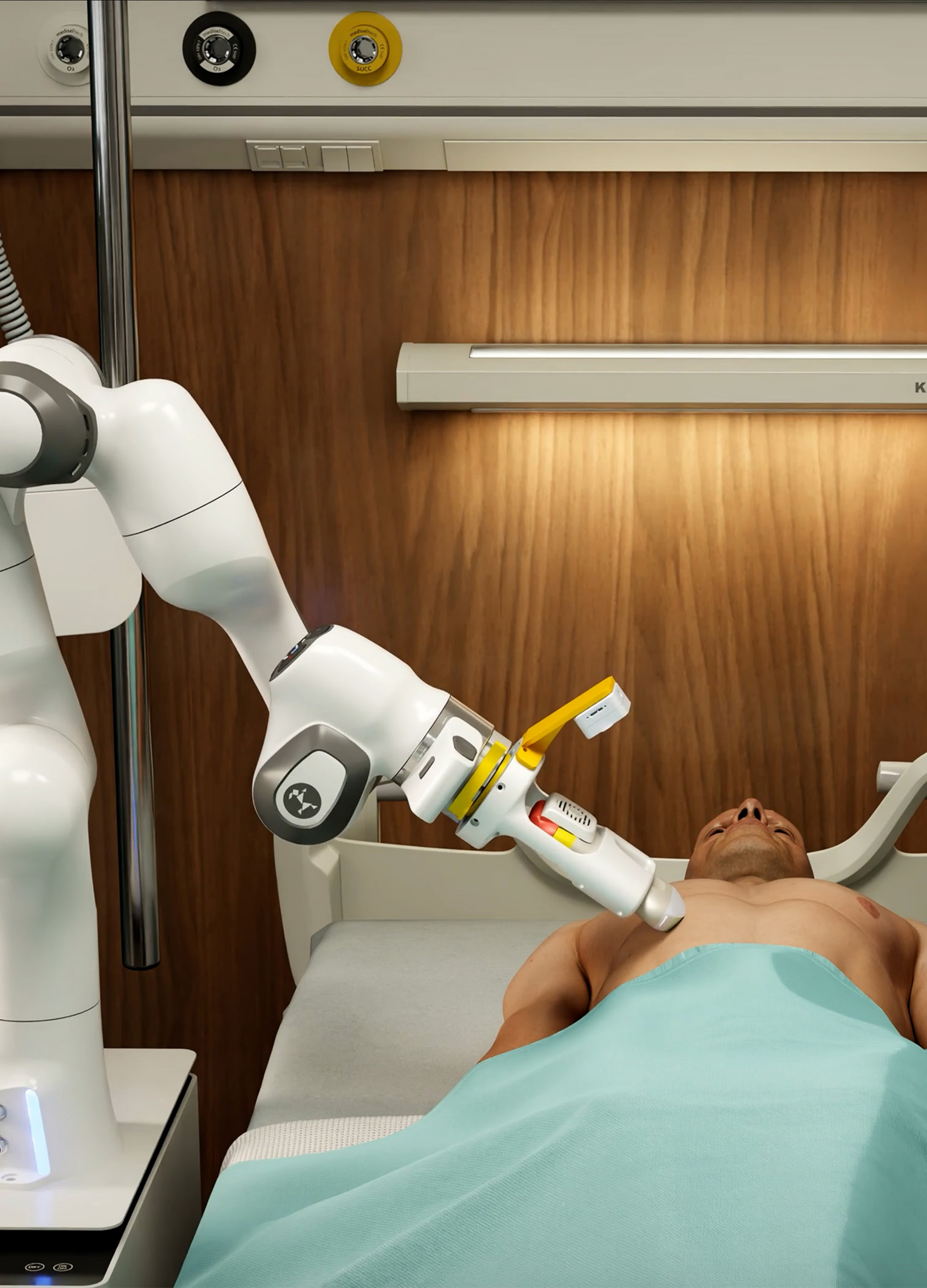
Transforming Patient Care —From Bench to Bedside

AI has become the new clinical assistant, freeing providers from administrative load so they can focus on what matters most— the patient. But these assistants don't just automate tedious tasks; they enable a fundamental shift from sick care to true healthcare.

From hospitals to homes, digital health platforms powered by NVIDIA AI deliver real-time insights and personalized agents that anticipate needs, close care gaps, and empower clinicians to act proactively. By uniting care teams and making care more accessible, healthcare organizations can put the patient back at the center, where technology works in the background and human connection comes first.

At the same time, AI agents are transforming how we design and execute clinical research and trials—the very engine of future care. Agentic AI also orchestrates complex workflows, from patient recruitment to regulatory compliance, while keeping humans in the loop.

With these agents, the same intelligence that powers discovery also enhances delivery, helping doctors deliver better outcomes for every patient.

Revolutionizing Medical Imaging

Medical imaging stands at a pivotal moment of transformation, with radiologists embracing AI-powered diagnostics, scalable analysis, and image interpretation.

These advances are already reshaping medical practice. Radiologists can focus on complex cases while AI handles routine screenings. Hospitals gain access to advanced diagnostic capabilities. Medical students learn from AI that demonstrates diagnostic reasoning step by step. This isn't a distant promise. AI is reshaping how medical images are analyzed today and accelerating life-changing insights for patients. This means faster diagnoses, reduced physician burnout, and more access to expert-level image analysis.

Enabling this transformation is **MONAI** (Medical Open Network for AI), an open-source framework that accelerates AI-driven medical imaging innovation.

MONAI provides domain-optimized tools—from interactive 3D segmentation to multimodal vision-language models—that integrate medical images, clinical text, and expert AI models. This isn't just about processing speed. It's about creating comprehensive AI solutions that scale from research breakthroughs to clinical deployment worldwide.

Today, MONAI has more than 6.5M downloads. It's been cited in 4,000+ peer-reviewed papers and has helped win 20 international medical AI challenges—often outperforming proprietary tools.
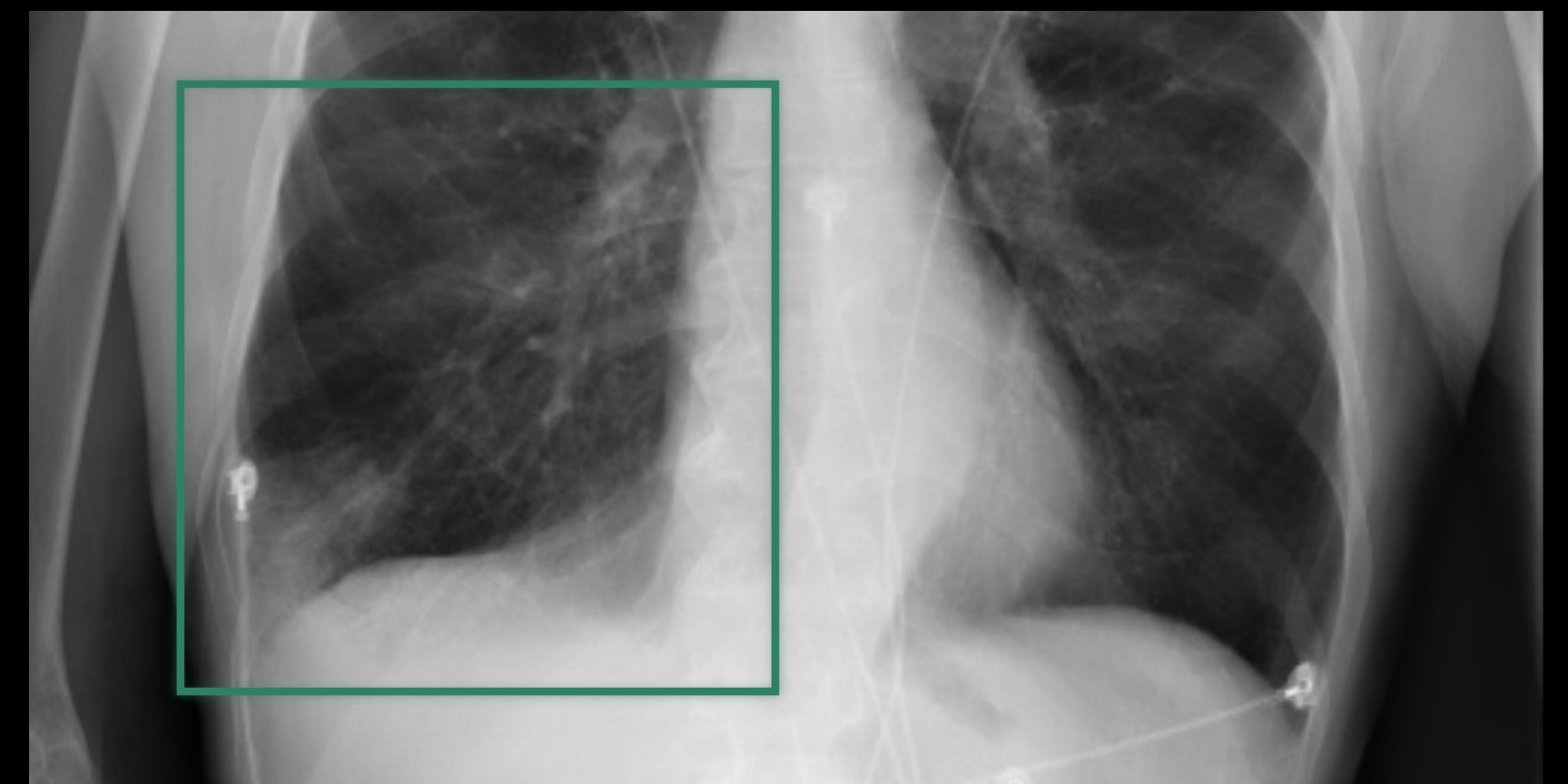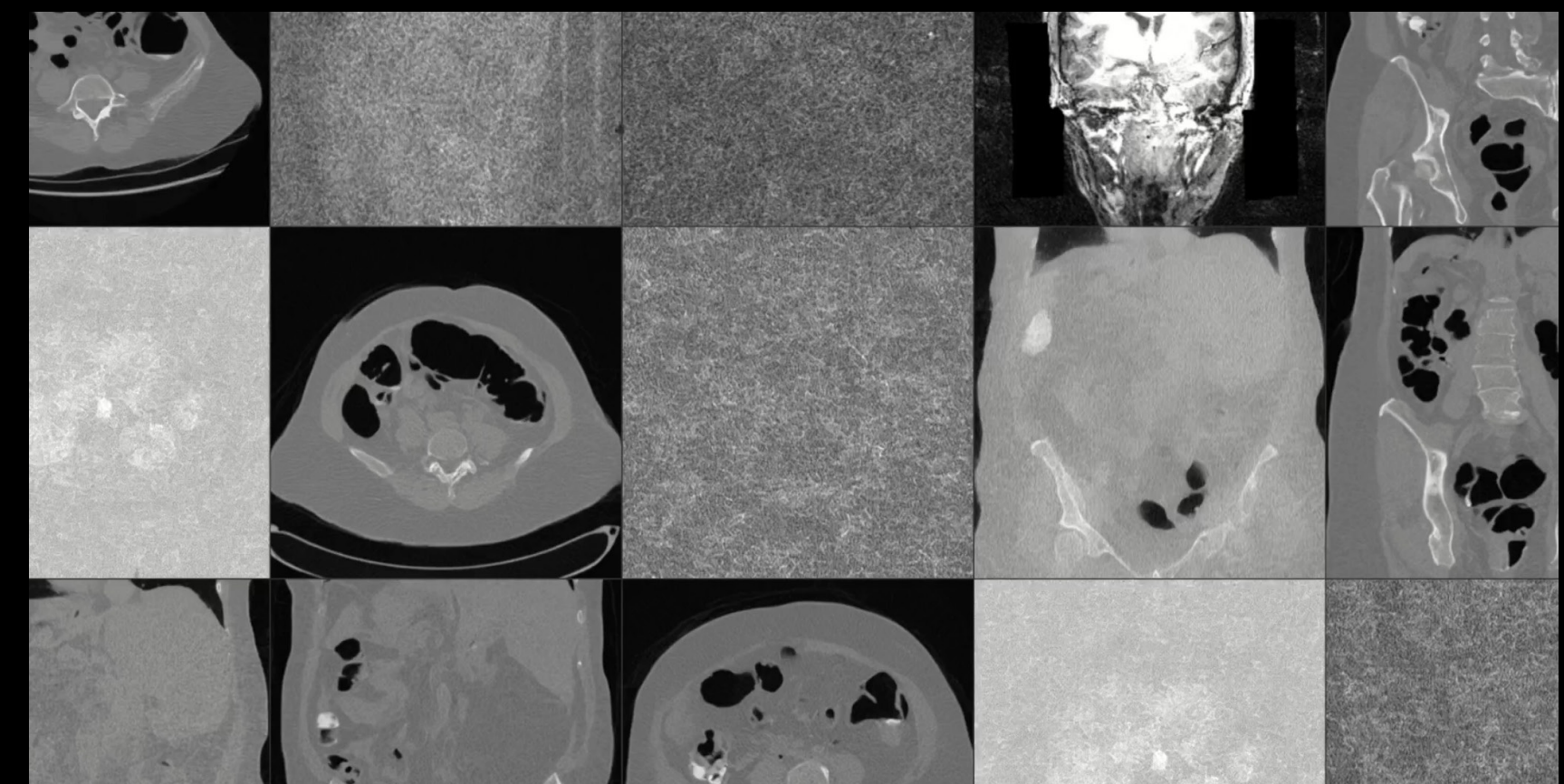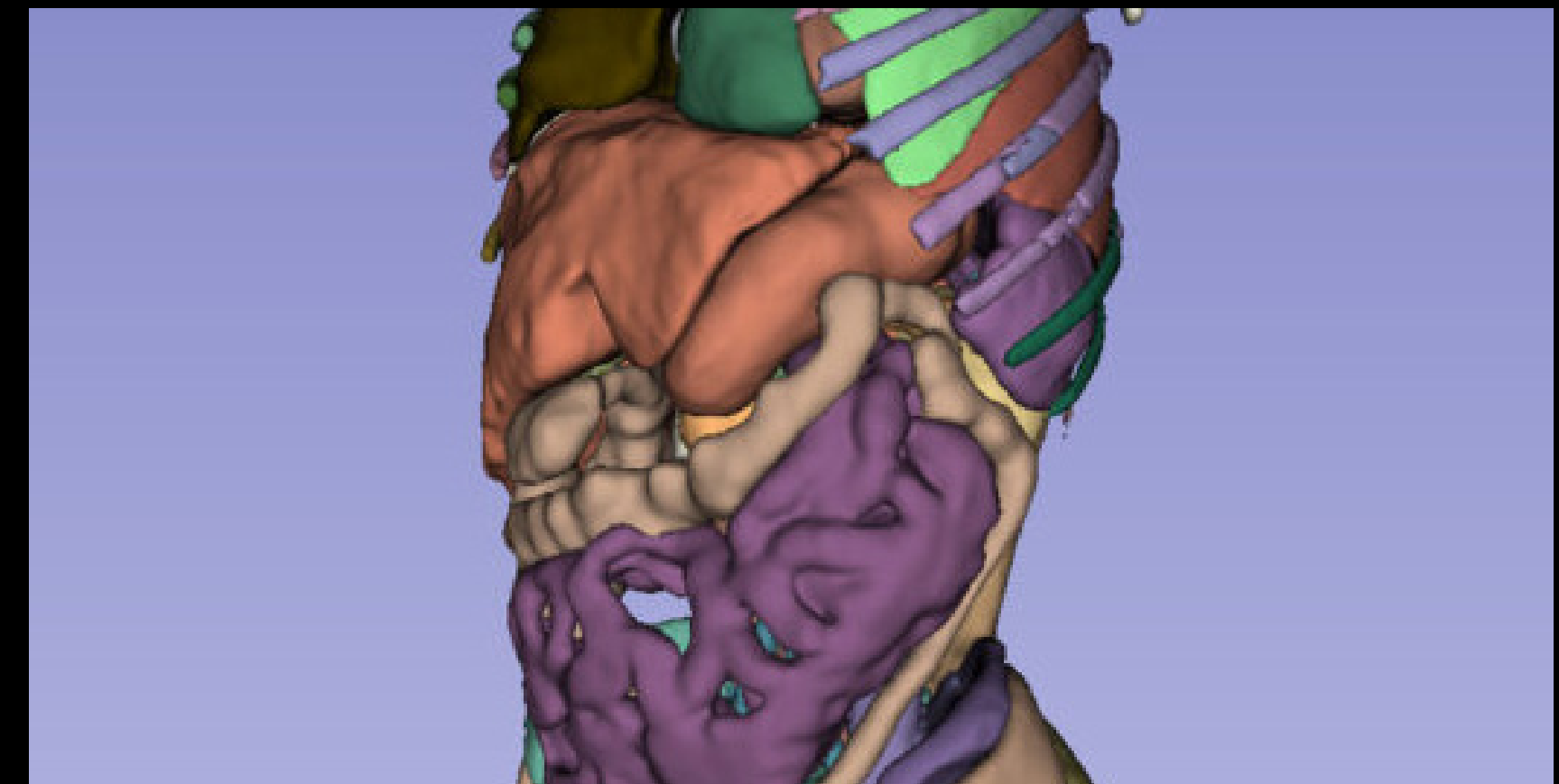
Taking Robotics From Imagination to Reality

Healthcare is on the verge of a revolution: one where doctors can walk through a hospital before it's even built, where surgical teams can safely practice complex procedures in lifelike virtual operating rooms, and where AI lends a guiding hand in real time to improve patient outcomes. In this new digital era, real-time AI, advanced sensors, simulation, and agents converge to assist clinicians, surgeons, and hospital staff at every step.

Simulation reduces risks and costs. Virtual training accelerates how clinicians master new tools. And software-defined surgical systems unlock continuous improvement. This means faster time to market and greater confidence in navigating complex regulations.

Behind this shift is the **NVIDIA Isaac™** for Healthcare platform, which brings AI, simulation, and accelerated computing together to make these possibilities real. Part of the platform, NVIDIA Holoscan integrates accelerated computing into medical devices, enabling intraoperative AI that can segment anatomy, guide surgeons to make precise cuts, and fuse multiple data streams on the fly. This lets medtech companies move at lightning speed to deliver the precision and safety that healthcare demands.

This is the foundation of the digital hospital. Procedures become safer and faster, innovation cycles shrink, and care teams gain intelligent assistants designed for safety and scale. Together, real-time AI, simulation, and agents unite digital and physical worlds to transform how hospitals operate and how care is delivered.

Moon Surgical™
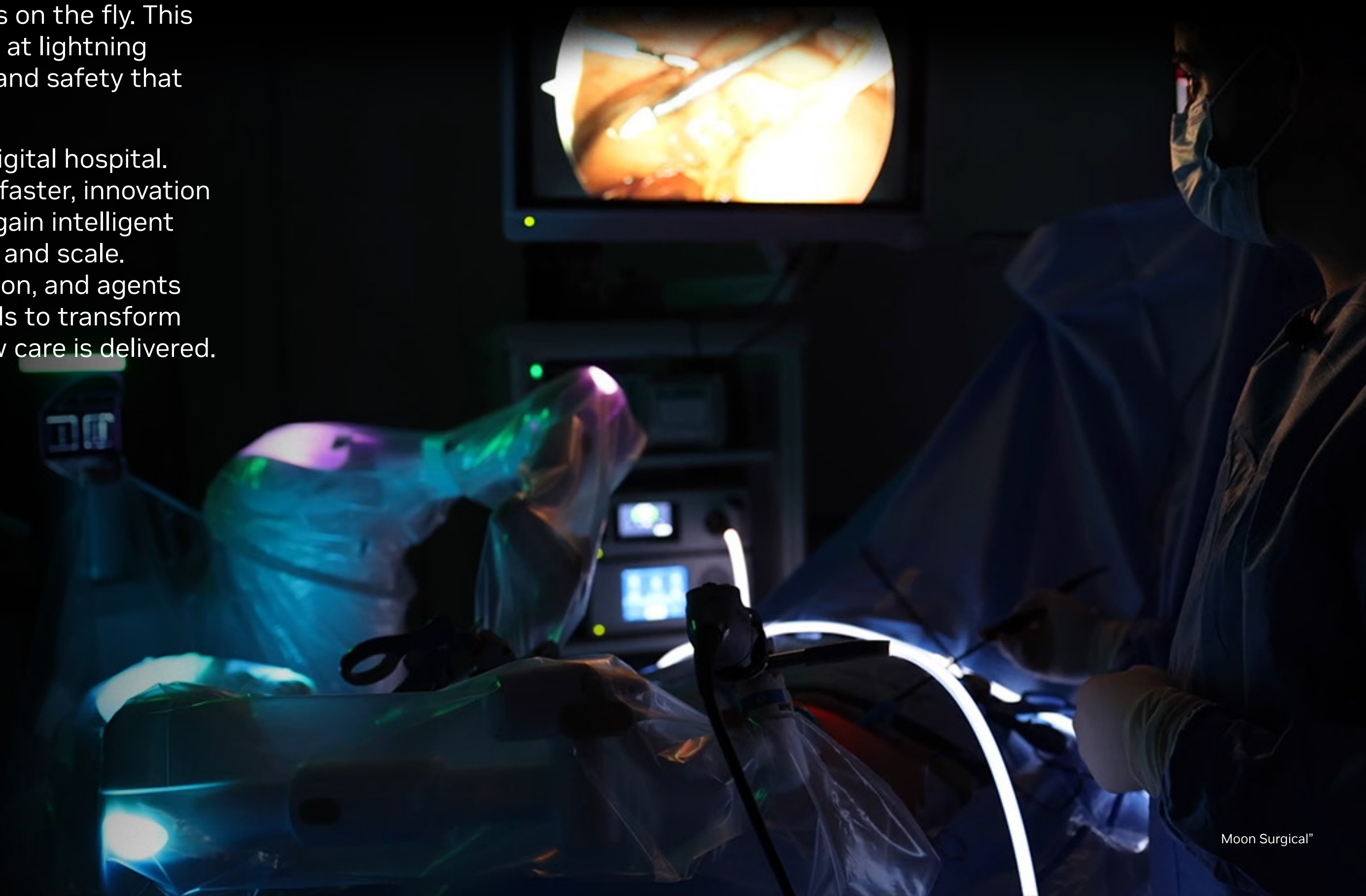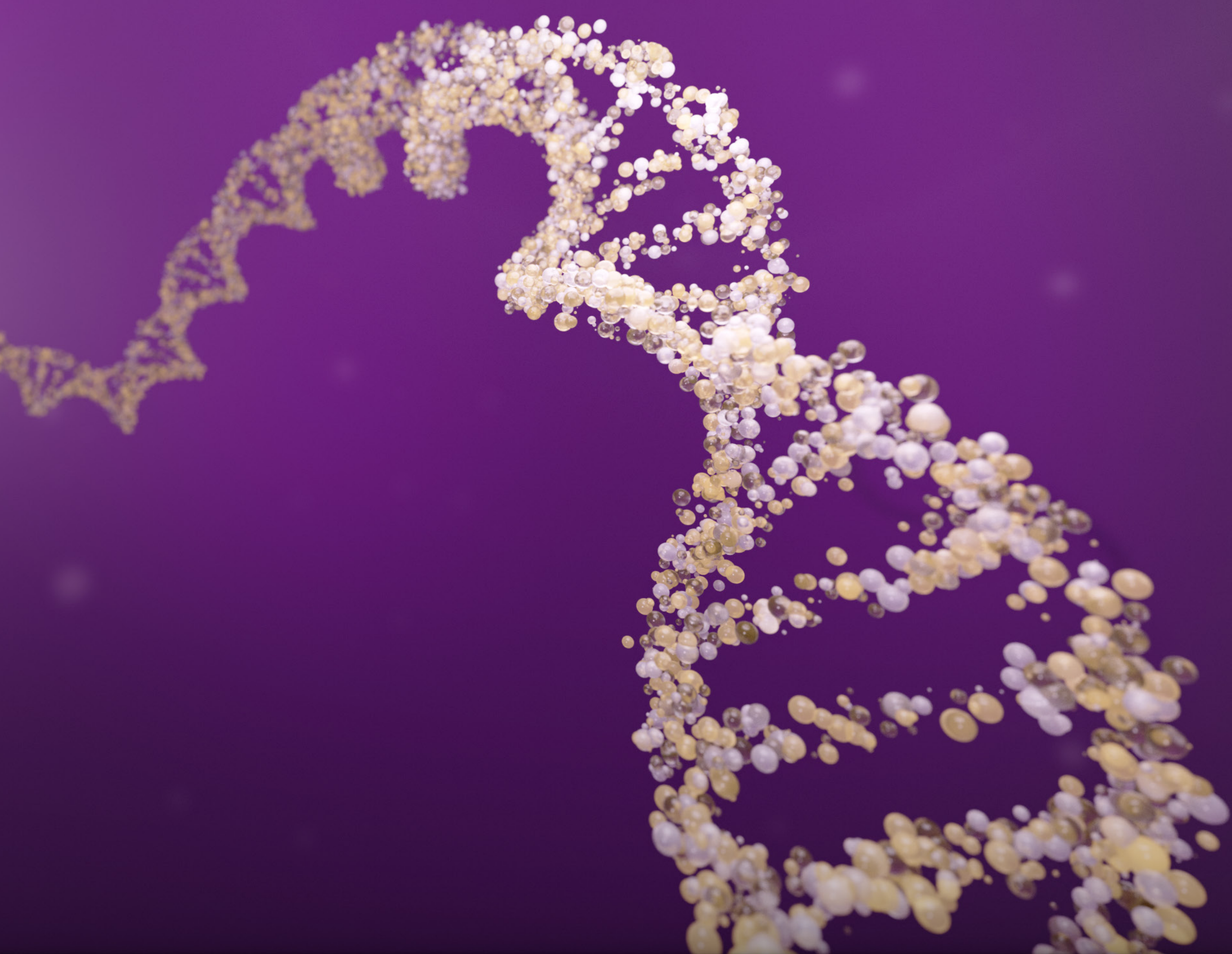
Unlocking the Code of Life

Genomics is entering an era of scale. Tens of exabytes of data are expected in the coming decade as sequencing gets faster and cheaper. But as the cost of reading DNA drops, the challenge shifts to turning that data into insights.

NVIDIA is tackling this challenge from end to end. **NVIDIA Parabricks ®**, a scalable genomics software suite for secondary analysis, accelerates open-source tools, cutting runtimes from hours to minutes. **NVIDIA CUDA-X™ Data Science** (formerly NVIDIA RAPIDS™), an open-source suite of data science and AI libraries, is often used for single-cell and tertiary analysis. Even during sequencing, NVIDIA brings GPU power to primary analysis.

Together, these solutions serve the genomics community by reducing bottlenecks, driving faster discoveries, and putting insights back into the hands of scientists and clinicians. From the NICU and critical care to oncology and population health, these breakthroughs mean answers arrive when time matters most, transforming patient outcomes.

Enabling Drug Discovery by Design

Historical drug discovery processes have been limited by trial and error, soaring costs, and timelines measured in decades. The **NVIDIA BioNeMo™** platform provides drug discovery developers with new tools to change that. Running on NVIDIA GPUs, generative AI models can navigate vast biochemical universes, design new potential drugs, and predict interactions at atomic precision, compressing discovery cycles from years into months. What was once bottlenecked by human physical limits has now become a continuous computational pipeline.

BioNeMo isn't just software. It's the digital platform for preclinical R&D. **NVIDIA NIM™** microservices deliver the world's most advanced models through simple APIs. The BioNeMo Framework lets scientists adapt AI to their own data, and BioNeMo Blueprints operationalize entire workflows into self-learning loops of "design, make, test, and learn." With NVIDIA, discovery is shifting from experimental luck to engineering precision—accelerated, industrialized, and ready to deliver the next generation of medicines to the world.
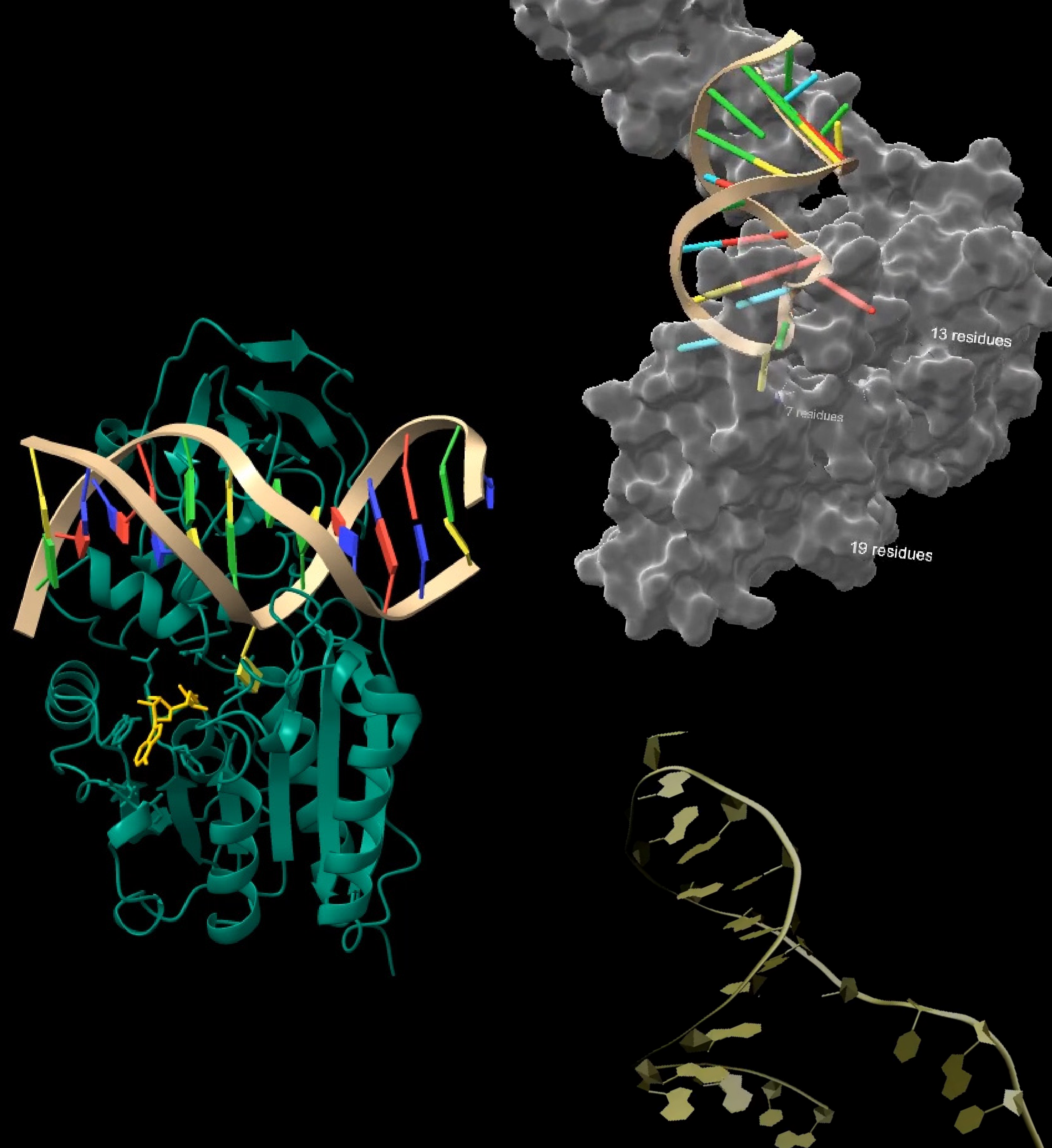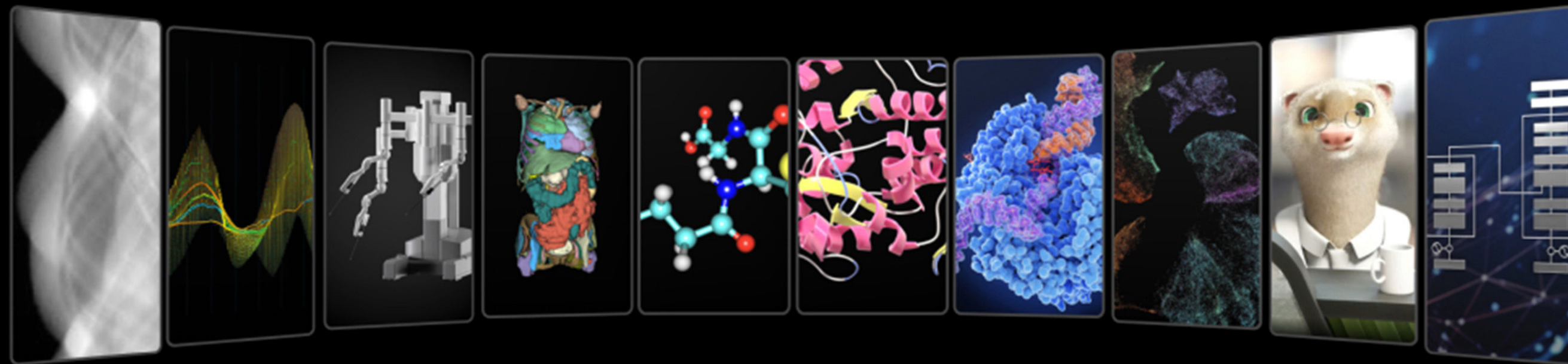
Democratizing Access to Healthcare Innovation

The fastest and most effective way to achieve transformative innovation is through collaboration. At NVIDIA, we work closely with partners across data center, cloud, and edge solutions and believe an open ecosystem where breakthroughs are not proprietary is key to a brighter, healthier future.

To achieve this, we've developed open-source AI technologies that any developer or organization can access to achieve breakthroughs across the ecosystem.

NVIDIA Clara™ is a family of models, tools, and recipes purpose-built to accelerate scientific discovery, advance medical imaging, and deepen our understanding of human health, biology, and chemistry. By democratizing access to powerful AI models and development frameworks, Clara open models empower researchers, developers, and organizations to build faster, evaluate rigorously, and innovate at scale.

Looking Toward a Healthier Future

NVIDIA is collaborating closely with partners across digital biology, digital health, and digital devices, building the innovation that turns data into insights and action. This means that discovery moves faster, care reaches farther, and outcomes improve for every patient.

Ready to Get Started?

To learn more about NVIDIA AI platforms for healthcare and life sciences and partner ecosystem visit
www.nvidia.com/healthcare