

Top Israel Medical Center Partners with AI Startups to Help Detect Brain Bleeds, Other Critical Cases

Assuta Medical Centers, Aidoc and Rhino Health are integrating tools built on NVIDIA AI technology with hospital research and clinical workflows to improve patient outcomes.

Author: Isha Salian

Israel's largest private medical center is working with startups and researchers to bring potentially life-saving AI solutions to real-world healthcare workflows.

With more than 1.5 million patients across eight medical centers, Assuta Medical Centers conduct over 100,000 surgeries, 800,000 imaging tests and hundreds of thousands of other health diagnostics and treatments each year. These create huge amounts of de-identified data that Assuta is securely sharing with more than 20 startups through its innovation arm, RISE , launched last year working in collaboration with NVIDIA .

One of the startups, Aidoc, is helping Assuta alert imaging technicians with AI-based insights of possible bleeding in the brain and other critical conditions in a patient's scan within minutes. Another, Rhino Health, is using federated learning powered by NVIDIA FLARE to make AI development on diverse medical datasets from hospitals across the globe more accessible to Assuta's collaborators.

Both companies are members of NVIDIA Inception , a global program designed to support cutting-edge startups with go-to-market support, expertise and technology.

"We're building a hub to serve innovators with the infrastructure they need to develop, test and deploy new AI technology for image analysis and other data-heavy computations in radiology, pathology, genomics and more," said Daniel Rabina, director of innovation at RISE. "We want to make collaboration with companies, research institutes, hospitals and universities possible while maintaining patient data privacy."

To support AI development, testing and deployment, Assuta has installed NVIDIA DGX A100 systems on premises and adopted the NVIDIA Clara Holoscan platform, plus software libraries including MONAI for healthcare imaging and NVIDIA FLARE for federated learning.

NVIDIA and RISE are collaborating on RISE with US , a program built to introduce selected Israeli entrepreneurs and early-stage startups working on digital and computational health solutions to the U.S. market. Applications to join the program are open until August 28.

Aidoc , which is New York-based with a research branch in Israel, has developed FDA-cleared AI solutions to flag acute conditions including brain hemorrhages, pulmonary embolisms and strokes from imaging scans.

Founded in 2016 by a group of veterans from the Israel Defense Forces, the startup has deployed its AI to analyze millions of cases across more than 1,000 medical facilities, primarily in the U.S., Europe and Israel.

Its algorithms integrate seamlessly with the PACS imaging workflow used by radiologists worldwide, working behind the scenes to analyze each imaging study and flag urgent findings — bringing potentially critical cases to the radiologist's attention for review.

Aidoc's tools can help address the growing shortage of radiologists globally by reducing the time a radiologist needs to spend on each case, enabling care for more patients. And by pushing potentially critical cases to the top of a radiologist's pile, the AI can help clinicians catch important findings sooner, improving patient outcomes.

The startup uses NVIDIA Tensor Core GPUs in the cloud through AWS for AI training and inference. Adopting NVIDIA GPUs helped reduce model training time from days to a couple hours .

Assuta is a private chain of hospitals that provides elective care — typically dealing with routine screenings rather than emergency room patients — but it adopted Aidoc's solution to help imaging technicians spot critical cases that need urgent attention among its roughly 200,000 CT tests conducted annually.

When a radiology scan isn't urgent, it may take a couple days for a doctor to review the case. Aidoc can shrink this time to minutes by identifying concerning cases as soon as the scans are captured by radiology staff.

At Assuta, urgent findings are typically found among cancer patients, or people who have recently undergone surgery and need follow-up scans. The healthcare organization is using Aidoc's AI tools to detect intracranial hemorrhages and two kinds of pulmonary embolism.

"We saw the impact right away," said Dr. Michal Guindy, head of medical imaging and head of RISE at Assuta. "Just a couple days after installing Aidoc at Assuta, a patient came in for a follow-up scan after a brain procedure and had an intracranial hemorrhage. Because Aidoc alerted the imaging technician to flag it for further review, our doctors were able to call the patient while they were on their way home and immediately redirect them to the hospital for treatment."

In addition to deploying AI models in full-scale, real-world settings, Assuta is supporting innovators who are developing, testing or validating new medical AI solutions by sharing the healthcare organization's data, while also using federated learning through Rhino Health .

Assuta has millions of radiology cases digitized — a desirable resource for researchers and startups looking for robust, diverse datasets to train or validate their AI models. But because of data privacy protection, it's important that patient information stays safely within the firewall of medical centers like Assuta.

"Data diversity is necessary to develop AI models meant for the use of medical teams. Without optimal computing resources, it would be extremely difficult to use our data and make the magic happen," said Rabina. "That's why we need federated learning enabled by both NVIDIA and Rhino Health."

Federated learning allows companies, healthcare institutions and universities to work together by training and validating AI models across multiple organizations' datasets while maintaining each organization's data privacy. Rhino Health provides a neutral platform — available through the NVIDIA AI Enterprise software suite — that enables secure collaboration, powered by NVIDIA A100 GPUs in the cloud and the NVIDIA FLARE federated learning framework.

With Rhino Health, Assuta aims to help its collaborators develop AI models across hospitals internationally, resulting in more generalizable algorithms that perform more accurately across different patient populations.

Register for NVIDIA GTC , running online Sept. 19-22, to hear more from leaders in healthcare AI.

Subscribe to NVIDIA healthcare news and watch on demand as Assuta, Aidoc and Rhino Health speak at an GTC panel .

Original URL: <https://blogs.nvidia.com/blog/2022/08/11/israel-medical-center-ai-startups-radiology/>