

HEALTHCARE

ClariPi's CT denoising solution uses AI to provide the best image quality possible, even from low-dose or ultra-low-dose CT scans

By [Jonathon Dreyer](#)

Vice President of Solutions Marketing, Healthcare
Nuance Communications, Inc.

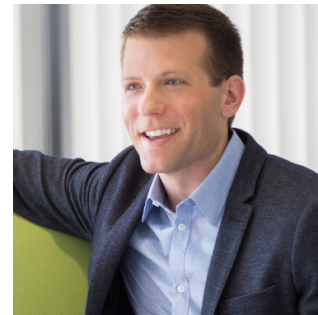
Clariπ

ClariPi's ClariCT.AI utilizes its Clarity Engine to perform CT image denoising for ultra-low-dose CT images. Trained using deep learning with millions of images, ClariCT.AI allows radiologists to view higher

quality images which increases reading efficiency, maximizes diagnostic confidence, and ultimately accelerates patient care while protecting patients from overexposure to radiation. By integrating seamlessly into Nuance's widely used diagnostic solutions, radiologists can use this ClariCT.AI within their workflow to improve their efficiency and accuracy, reduce stress, and combat burnout. ClariCT.AI is available through the Nuance AI Marketplace, which connects more than 9,000+ facilities in the U.S.

The fear of radiation exposure has plagued modern medicine for far too long. While CT scans can be vital to screen, diagnose, monitor and treat different conditions, patients and clinicians often question if this kind of imaging is deemed medically necessary due to radiation concerns. ClariPi is addressing the unmet need for higher quality imaging on low-dose CT scans with their FDA-cleared and CE-marked CT denoising solution, ClariCT.AI. Using deep learning to remove thousands of different noise patterns, ClariCT.AI produces images with the diagnostic clarity comparable to that of high-dose CT images. Now, patients and their care teams no longer have to choose between quality CT imaging and radiation safety.

Hanna Cho, Global Sales and Marketing Director of [ClariPi USA Inc.](#), shares her perspectives on their AI journey and the positive impact ClariCT.AI has had on care delivery and the radiology workflow.



Jonathon Dreyer

Vice President of Solutions Marketing,
Healthcare
Nuance Communications, Inc.

First published Sept. 27, 2021

<https://whatsnext.nuance.com/healthcare/clari-pi-ai-seamlessly-integrates-nuance-powerscribe/>

Jonathon Dreyer: Tell us about your business—when and how you started and your development journey.

HC: ClariPi's journey started in 2015 to solve the unmet needs in medical imaging through the convergence of intelligent big data computing and medical imaging technologies. Our products were born through a long-term collaborative research engagement between engineering and medical experts.

JD: What AI solutions do you have and what do they do?

HC: Our novel medical imaging solution, ClariCT.AI, utilizes its Clarity Engine to perform CT image denoising for ultra-low-dose CT images. The Clarity engine was trained using deep learning with millions of images and can remove thousands of different noise patterns from CT images. This provides radiologists with higher quality images to increase their reading efficiency while providing them with maximum diagnostic confidence.

JD: What challenges or needs did you see that drove you to focus on this?

HC: We saw that there is an unmet need to reduce radiation exposure for both patients and staff alike. For example, many patients—pediatric, OBGYN, and cancer patients, are especially sensitive to radiation exposure from diagnostic imaging exams. However, doctors still need to order CT scans to properly treat these patients, despite the excess radiation exposure, unintended complications, and side effects the CT scans may cause. The current, widely accepted practice is to tolerate radiation exposure as an acceptable risk, even while there are many indications pointing to harmful effects from radiation. Radiologists should have high quality imaging for the best possible interpretation, while protecting patients from overexposure of radiation. We created ClariCT.AI, to have the best of both worlds—clean and quality CT imaging and radiation safety. There is no need to compromise anymore.

JD: What's the big "Aha" moment when you first show users what your AI application(s) can do for them?

HC: With ClariCT.AI, you can perform a CT scan at only an X-ray level dose and still get a high-quality image. The most thrilling moment for our team is when we demonstrate the solution and our clients witness its impact. Greater application and usage of CT technology with ClariCT.AI provides clinicians with richer, more precise

data, and patients with increased safety and better treatment. With the Nuance AI Marketplace integration, we are one step closer to our vision. We know we've done our job when our clients agree our solutions will accelerate patient care and increase quality.

JD: What's the number one benefit you offer?

HC: The number one benefit of ClariCT.AI is to provide better image quality, even from low-dose or ultra-low-dose CT scans. Typically, CT images with such a low radiation have a high amount of noise. The software cleans up CT images to produce diagnostic quality images like that of a high dose CT. Radiologists now have clean images to more easily make diagnostic assessments with less fatigue and better efficiency. All the while, this reduces unnecessary high radiation dose CT scans which are harmful to patients and radiographers. By reducing radiation dose for imaging examinations, we can also prolong the X-ray tube life resulting in a reduction of an organization's operating cost as well. It is a win for everyone.

JD: Are there any stories you can share about how your AI solutions drove measurable patient care outcomes?

HC: Radiation induced cancer has been a long-standing dilemma in modern medicine. On one hand, CT scans are an indispensable tool for screening, diagnosing, and monitoring of treatment responses and recurrences of various diseases. On the other hand, CT radiation is known to cause DNA cell damage and is a carcinogen responsible for 1.5 to 3% of all cancers, which translates to more than 27,000 cancer patients in the U.S. per year. Public awareness and concern of CT radiation is ever increasing worldwide and causes hesitation of medically necessary CT scans. For example, some lung cancer screening participants in South Korea were reluctant with their follow-up CT scans due to radiation concerns. However, after learning about the ultra-low-dose option with ClariCT.AI, they are now actively partaking in the follow-up program without fear or resistance.

JD: What benefits does Nuance, and its [AI Marketplace for Diagnostic Imaging](#) bring to your users? What problems does the marketplace and integration into Nuance's workflow solve?

HC: With Nuance AI Marketplace, implementation is simplified for our customers. As long as they are able to access the Marketplace, they can use our state-of-the-art AI software. There is no need to worry about what kind

of hardware to purchase, upgrade, and maintain. This simplifies distribution of the software to our customers by taking the infrastructure requirements out of the equation. I believe our customers will appreciate the ease of use and simplicity of deployment.

JD: What has your experience been working with the Nuance team?

HC: The experience has been great. We appreciate the Nuance team's support during the onboarding process. Our software is the first of its kind in their AI Marketplace. Therefore, there was a lot of exploration and learning from both ClariPi and Nuance. Nuance has been very supportive along the way. It has been a fruitful journey for ClariCT.AI and the Nuance AI Marketplace. We look forward to working with Nuance in the future to bring more of our latest and greatest AI software to the Marketplace.

JD: What is your vision for how your solution(s) will evolve over the next five years?

HC: ClariCT.AI is the first and foundational product from ClariPi. Many of our diagnostic products are good compliments to ClariCT.AI. We currently have ClariSigmam and ClariAdipo available in European and South Korean

markets. They combine the benefits of low-dose or ultra-low-dose CT scans with the state-of-the-art AI detection for finding potential breast cancer nodules and abdominal fat analysis for metabolic syndrome prediction, respectively. On top of these we have more in the pipeline such as a CT contrast medium reduction solution to address the need to minimize contrast dye side-effects (i.e., allergic reactions and life-threatening nephropathy). Moreover, ClariPulmo, a novel lung nodule detection solution, will be coming in the near future. We see that all these examinations can benefit from lowering radiation dose while having AI act as an objective second reader for greater clinical efficiency and productivity.

JD: In one sentence, tell us what you think the future of medicine will look like.

HC: At ClariPi, we envision AI driving the future with precision imaging diagnostics so that people may enjoy its full benefits without the health concerns associated with the procedure.

LEARN MORE

To learn more about ClariPi, or to sign up to be a beta user, please visit www.claripi.com and follow us on [LinkedIn](#).



About Nuance Communications, Inc.

[Nuance Communications](#) (Nuance) is a technology pioneer with market leadership in conversational AI and ambient intelligence. A full-service partner trusted by 77 percent of U.S. hospitals and 85 percent of the Fortune 100 companies worldwide, Nuance creates intuitive solutions that amplify people's ability to help others.