# What's next

Healthcare

Imbio lung AI models support lung disease diagnosis and care via Nuance AI Marketplace

Imbio is a medical imaging software company that offers fully automated 3D visualization and quantitative analysis solutions for lung and cardiothoracic imaging diagnostics. Designed to support radiologists and other clinicians, it automates portions of their workflows and provides more personalized diagnoses to their patients with either chronic or acute conditions. Imbio's FDA-cleared Lung Density Analysis (LDA) is their first solution to be integrated into PowerScribe radiology reporting workflows via the Nuance AI Marketplace and PowerShare Network, connecting over 7,500 healthcare facilities in the U.S.

Jonathon Dreyer
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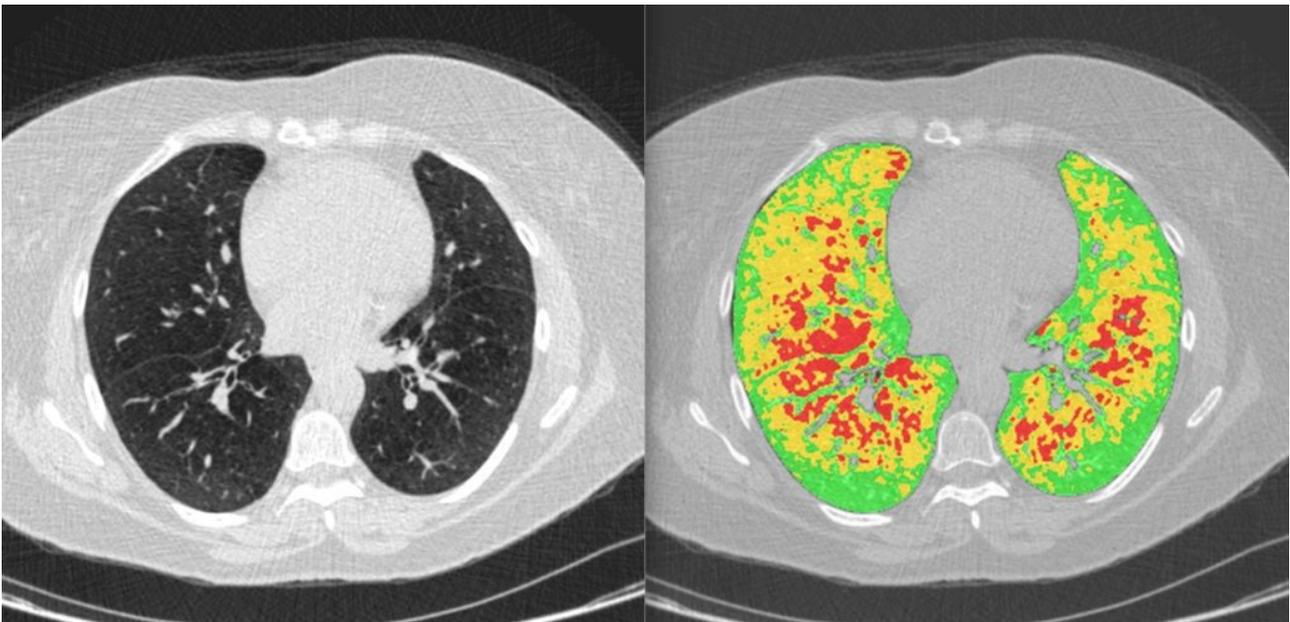
Q&A

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

Mike Hostetler: We founded Imbio in 2012 as a medical imaging software company and have since developed multiple, fully automated 3D visualization and quantitative analysis solutions for lung and cardiothoracic imaging diagnostics. We launched our first product in the U.S. in 2015 and have since expanded our client base with users in Canada, South America, Europe, and Asia.

Our primary mission is still the same as it was in 2012. We are closing the gap between the promise of quantitative imaging and the capacity and quality demands of healthcare. We're here to support radiologists and other clinicians so they can automate portions of their workflows and provide high-quality, personalized diagnoses to their patients with either chronic or acute conditions. We're also developing a unique business in custom companion diagnostics for medical device and pharmaceutical strategic partners, which encompasses both clinical trial use and co-marketing/co-distribution into hospitals and clinical practices for patient care.

JD: What AI models do you have, and what do they do?

MH: Imbio's first FDA-cleared and clinically available product is called Lung Density Analysis (LDA). LDA is part of the company's pulmonary portfolio supporting the diagnosis and care of conditions including chronic obstructive pulmonary disease (COPD) and emphysema. Our LDA product has been successfully deployed by clients to support lung cancer screening and smoking cessation programs. We also offer algorithms for investigational use that are in the regulatory process for clinical use including: Lung Texture Analysis (LTA) for pulmonary fibrosis and interstitial lung disease, RV/LV Analysis for pulmonary embolism, an algorithm for coronary calcification for heart disease, and yet another providing detailed airway analysis for multiple lung diseases.

Imbio's technologies transform standard medical images into rich visual maps of a patient's condition, and with accompanying quantitative reports, Imbio provides physicians with detailed data on the type and extent of abnormalities found in a patient's images. In the clinical setting, our clients deploy us as a tool to aid diagnosis, quantitatively stage the patient condition, and support ongoing treatment decisions including monitoring progression or treatment response.

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

MH: We've truly seen so many "Ahas" it's difficult to pick just one. Clinically, the right AI or QCT can truly make radiology easier and help deliver better care for patients. Seeing disease in color that can be so difficult to see with the human eye in greyscale is a big "Aha" for our clients, especially in quickly being able to see how patients differ from each other. And quantification transforms the way radiologists can communicate to referring physicians with more informative and specific data. The Patient LungMap™ is another big "Aha" because it helps physicians talk to their patients. While AI can be powerful and generate a ton of data for a physician, LungMap was designed with patient focus groups to make a report that a patient could relate to. As one of our users quipped recently during an "Aha" moment, "When patients receive care they can understand, they appreciate it more, which means they will be more likely to come back to our institution if and when they need care."

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

MH: The information contained in medical images has significant untapped value for radiologists and their colleagues, provider institutions, researchers, device companies, pharma companies, payers, and most importantly, the patient. Quantitative imaging and AI can help radiology and the entire healthcare industry unlock that value by:

- Enhancing diagnosis and disease staging
- Improving clinical efficiencies through automation
- Assisting in drug and device development as well as patient-specific therapy selection
- Improving patient care through the delivery of more personalized medicine, and
- Providing radiologists with tools they can use to differentiate their radiology practices.

JD: What s the number one benefit you offer?

MH: I think the biggest hurdle today for AI adoption in radiology is and has been the fear of changing workflow behaviors due to significant economic pressures. So, if I had to pick just one benefit today, I would start with automation. Imbio is fully automated, so the data can be viewed along with the original study to help support the radiologist with their diagnosis without adding steps in the process. The system is effortless, but the results can be powerful.

JD: Are there any stories you can share about how your AI model(s) drove measurable patient care outcomes?

MH: We're very proud of how our products are deployed to assist health systems with patient care. For example, University of Pittsburgh Medical Center used our Inspiration LDA product on 6,000 patients in their lung cancer screening program across multiple sites this past year, making assessing emphysema a systemic part of their screening program as another important potential finding and cause for follow-up care in long-term smokers. Similarly, the University of Michigan ran over 900 advanced Functional LDA analyses to support clinicians with advanced care decisions such as pre- and post-surgical procedures.

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?

MH: Simply put, Nuance does a great job of creating accessibility and usability. The Nuance AI Marketplace offers one platform for the consumption of disparate AI applications allowing users to access all the benefits that Imbio and others have to offer in an existing, familiar, automated environment. Nuance's integration of AI outputs into PowerScribe One and PowerScribe 360 makes AI more usable by putting analysis results seamlessly into radiology reports. The system can be effortless but powerful for the end-user.

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

MH: The key to Imbio's success on the platform has been due to the timely and collaborative efforts of everyone on the Nuance team. The technical integrations group, the contracting group, leadership, and both the Sales and Marketing teams – all have been outstanding. We have yet to encounter a "hurry up and wait" incident on anything; from the moment we started until the moment we finalized the integration.

JD: What is your vision for how your solution(s) will evolve over the next 5 years?

MH: Imbio's roadmap is driven by the user experience. Not only do we provide viable, quality solutions to today's problems, our team is busy working with clients and key opinion leaders to

design solutions for tomorrow's problems too. This includes expanding the breadth and depth of our portfolio, but we also plan to expand our core technologies to ensure we consistently exceed expectations and deliver many more "Aha moments". Last but not least, from an efficiency standpoint, we'll continue our own focus on automation while working with partners like Nuance that make AI easily accessible and consumable in the physician workflow.

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

MH: Quantitative imaging, genomics, demographics, and other key patient data points will be built into algorithms that physicians will have at their fingertips to ensure patients receive the best possible treatments for their disease when they need them—sooner rather than later.

Learn more:

To learn more about Imbio AI solutions, please visit Imbio.com and follow us on LinkedIn or Twitter.

To learn more about Nuance AI Marketplace for Diagnostic Imaging, please visit https://www.nuance.com/healthcare/diagnostics-solutions/ai-marketplace.html

Intelligence at Work is a blog series by Jonathon Dreyer, Vice President, Solutions Marketing, Nuance Communications. Intelligence at Work showcases projects and applications that demonstrate how Nuance technologies extend the value, use, and performance of integration and development partner offerings. This blog series focuses on inspiring the healthcare developer community to think beyond their current state and take their innovations to new heights by tapping into the latest in artificial intelligence.

Tags: Imbio, radiology, Radiology AI

About Jonathon Dreyer

Jonathon Dreyer is the vice president of solutions marketing for Nuance where he is driving a physician-first approach to medicine by bringing cloud-based speech recognition and clinical language understanding technology to a worldwide community of healthcare IT developers and provider organizations. Prior to his current role, Jon worked as the solutions marketing manager for Diagnostic Imaging at Nuance and previously headed up marketing at Commissure Inc., a provider of clinical documentation and healthcare communication solutions. Jon graduated with Summa Cum Laude honors at Wayne State University where he earned a B.S business administration.

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