

“We’re giving dentists the ability to clearly communicate their diagnoses”

An interview with Pearl founder and CEO Ophir Tanz

■ At IDS, dental technology start-up Pearl introduced Second Opinion, an artificial intelligence (AI) software application that helps dentists detect pathologies and other conditions in dental radiographs. In this interview, Pearl founder and CEO Ophir Tanz speaks about why he developed Second Opinion and what dentists can expect from it.

Mr Tanz, you chose to leave your leading role in another AI company you founded, which focused on media, in order to launch Pearl. What made you turn to the dental field?

We spun Pearl out of my previous company, so it was a gradual shift. I’ve been interested in AI since I was a student. The early 2010s brought significant advances in the field. My previous company focused on media, which is largely visual, so we started working with computer vision, the category of AI that focuses on visual intelligence. I knew AI was a paradigm-shifting technology, and I started looking for new applications for our computer vision capabilities. Radiology was a fairly obvious choice. I investigated several medical fields and decided that dentistry would be the best. We began collecting and annotating radiographs to train an AI to perform dental diagnoses and assembled what is, to my knowledge, the largest collection of expertly annotated panoramic, bitewing and periapical images in the world. All that early development work took place at my previous company. Ultimately, I decided to spin off the dental division as Pearl, because I wanted to focus more on it. I guess you could say it was my baby. I saw how much potential it had to transform the dental field, and I wanted to give it my full attention.

You said you investigated several medical applications for AI. Why did you choose dentistry?

My dad’s a retired dentist, so I grew up in a practice, which may have influenced me a little. However, the main reason was that dentistry is uniquely suited to AI—at least compared with most other medical fields.

In what way?

It’s unique in several ways. In other fields you have radiologists—experts who are well educated and well paid. They are the gatekeepers who would have to give AI their blessing and push it forward in an organisation, but they would naturally feel threatened by something that might be able to do their job better than they could. They wouldn’t want to become redundant. Therefore, the threat of technology taking over the role of the key diagnostician creates a great deal of friction for anyone trying to introduce an AI radiology tool. However, in dentistry there is little of that friction because dentists aren’t radiologists. They’re asked to do that work, but it’s not their specialty and you’re not taking anything away from them by giving them a tool that helps them identify the conditions they’re trained to treat. Another difference is that, because of privacy concerns, there’s a much higher level of sensitivity around data associated with other medical fields. For brain cancer, lung cancer or mammography, it’s incredibly difficult to acquire the massive amounts of data that is needed to train the AI.

Was it easy to acquire data in dentistry?

Raw data, yes. You have to employ experts to annotate the data,



▲ Pearl announced at IDS 2021 that its Second Opinion AI solution is now commercially available in Europe. (© Dental Tribune International)

which is very time consuming and expensive, but obtaining radiographs is relatively easy. We actually have an excess of radiographs—far more than we will ever need to annotate. However, in other fields nobody wants to share imagery. And even when you are able to acquire that data, it’s incredibly scarce compared with what’s available in dentistry. If you do obtain that data, then of course, the final point of friction in other medical fields is that you’re

dealing with large hospital systems, which are quite hard to penetrate. These systems are incredibly bureaucratic. They’re legacy-oriented. It’s hard to sell into them. You go through the trouble to acquire data and convince radiologists to give your technology their blessing, only to be faced with the challenge of actually being accepted into the hospital system.

Would you say dentistry is more adaptable when it comes to new technologies?

Yes, for AI in particular. In dentistry, you have plenty of data, and you have dentists who won’t be adversely affected by AI—who, in fact, want it. In addition, it is easier to get into dental practices, as they are smaller, more agile and generally more interested in cost-effective innovation. Individual dentists and dental practices form a very entrepreneurial group. They want to make more money, deliver better care, and reduce overheads and liability. Also, they’re able to make adoption decisions directly, whether it’s an individual practice, a tenoffice group, or even a thousandoffice corporate dental company. I don’t mean to say there aren’t any hurdles for AI in dentistry, but they are considerably smaller than those in other medical areas.

What hurdles do you see as you prepare to release Second Opinion?

So far, dentists have been overwhelmingly positive, but I think convincing all dentists that AI assistance is a significant benefit will be very challenging. It seems un-

necessary to point out that all humans make mistakes. In order to encourage adoption of the product, we will probably have to raise more awareness of the surprisingly high level of diagnostic inconsistency among dentists. People don’t like to admit mistakes, though, even when they’re obvious. Therefore, it will probably be more productive to address that objection with education on how, even for perfect dentists, Second Opinion is extremely valuable as a patient communication tool.

How does it help with patient communication?

It’s an objective third party alongside the dentist and the patient. Patients generally have to place blind trust in their dentist. Whether the dentist’s diagnoses are objectively perfect or not, patients will visit another dentist if they have doubts or don’t like what they have been told. We’re giving dentists the ability to clearly communicate their diagnoses with the support of a tool that gives their patients a greater sense of assurance. It eliminates the doubt that makes patients seek a second opinion elsewhere—that is why we call it Second Opinion.

Is there anything you would like to add?

There’s so much that could be said about this topic. For now, I would just like to say that I’m looking forward to sharing this technology at IDS. Our team has worked extremely hard to deliver a highly accurate and complete radiological assistant, so it will be rewarding to see it put to use. ◀



▲ Ophir Tanz is the founder and CEO of Pearl. (© Dental Tribune International)