

Making clinical diagnosis picture-perfect the focus at Huron Digital Pathology

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WATERLOO — People waiting for biopsy results are usually too worried about the diagnosis to think about the people behind the microscopes.

But Réda Fayek, chief executive at Huron Digital Pathology in Waterloo, knows that the people behind the microscopes, the pathologists, can make all the difference in saving a person's life.

He is on a mission to encourage the adoption of digital pathology tools for routine diagnosis in North America.

"The need for digital pathology to generate better patient outcomes is so palatable," Fayek said. "It's good for the patients, it's good for the hospitals, and it's good for the taxpayers."

The field of clinical pathology is currently in transition, Fayek said.

Digital tools for scanning and displaying images from microscope slides onto a computer screen have been used in research labs for years. But when it comes to routine clinical work in North America — for cancer diagnosis, for example — the adoption of the digital way of doing things has stalled for a number of reasons, Fayek said.

In the United States, the Food and Drug Administration has not yet approved digital "whole slide imaging" technology. The agency put the technology in a category of devices that makes it very hard to get the approvals.

"They have made the task possibly infinite in scope," Fayek said.

Health Canada approved specific whole slide imaging platforms for diagnostic use at some test sites, but Fayek said it needs to become the standard.

But he believes that it is inevitable because of advantages digital platforms provide.

"The future has already happened in Europe. Last year, an entire hospital in Europe converted fully to digital pathology."

His company is now exporting many of its products into Europe.

To gear up for the future, Huron Digital Pathology recently rebranded itself. It was previously under a more generic name, Huron Technologies and, before that, it was known as Biomedical Photometrics.

Fayek said adding "digital pathology" to the Huron name "clarifies the message" and "it resonates well with the customers we want to be attracted to us."

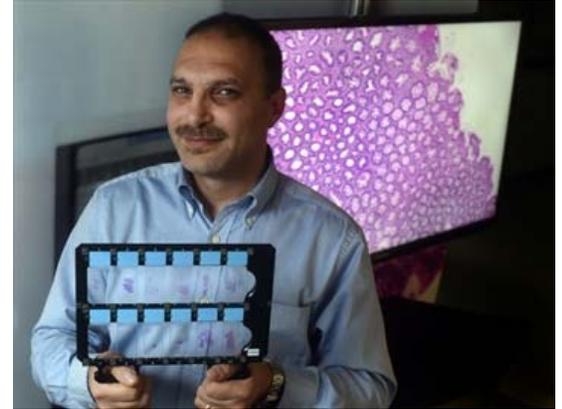
The company employs 15 people and is hiring. Although the number is small, "everyone here is punching way above their weight," Fayek said. The company brought more expertise on board, including the mechanical, systems and software engineers needed to develop the scanners and companion technologies.

Huron emerged more than 20 years ago out of technology that was being commercialized by Ted Dixon, a former University of Waterloo physics professor, along with Brian Wilson, head of biophysics and imaging at the Ontario Cancer Institute and Princess Margaret Hospital, and UW physics professor Melanie Campbell.

At the time, it had powerful technology that was initially aimed at reading biochips and genetic microarrays. But it was a company in search of a broader market.

Eventually, it got fresh investment from Exel Research Inc., led by Savvas Chamberlain, founder of Dalsa Corp., which is now Teledyne Dalsa. That investment allowed Huron to develop and commercialize its core digital scanner technology, called TissueScope, and bring that technology and slide scanning services into fields such as pathology.

Huron has a long track record in research labs around the world that need digital equipment for specific projects. In the field of neuroscience, for example, researchers are building 3D maps of the brain — maps that can visualize the connections deep inside the brain, not just the surface features.



Reda Fayek, chief executive officer of Huron Digital Pathology, holds a slide with tissue samples that are scanned by Huron's digital slide scanners.

The researchers have magnetic resonance imaging (MRI) pictures of the brain, but the microscope slides with the slices of brain tissue can tell them a lot about what actually goes on deep inside.

Fayek said Huron Digital Pathology's products include software that can combine the images from pathology with the ones from radiology, to make that research easier.

The company also provides a slide scanning service for researchers who don't have the volumes to justify buying the instruments.

"They send us the slides and we digitize them," Fayek said.

The company has big competitors. "We are already playing with the big boys, and we are winning," Fayek said.

Its smaller size provides the flexible advantage of being able to accommodate a customer's specific needs. "We survive by listening to our customers very attentively. We respond to their pain points."

But now the company is focusing more intently on clinics and hospitals, a market poised to grow significantly in the coming years. "We are starting to focus on products that are mass producible and relevant to large segment of the market, as opposed to just research," Fayek said.

"Our target market is practically anybody with two microscopes," he said. That might include a pharmaceutical company or an industry that uses microscopes. But the big opportunity is in clinics and hospitals that might have five or 10 or even 40 pathologists, depending on the size of that hospital's jurisdiction in Europe, Canada or the United States.

"This is the beginning of declaring we are here for them," Fayek said.

The company developed a suite of products suited to that market. An example is TissueSnap, a piece of equipment that captures instant preview images of up to 12 slides per slide holder and puts that preview data in the scanner queue. That makes the lab's workflow much more efficient because if the scanner knows, early on in the process, what slides are coming in, the scanning process will be much more efficient, Fayek said.

With its new focus on clinical pathology, Fayek said the company should benefit from having a much faster sales cycle, leading to faster returns and sustainable growth.

Despite the challenges in getting adoption by clinics in North America, Fayek believes it is inevitable that digital pathology will become the norm.

He said the need is becoming obvious because a number of provinces have had scandals in which errors in pathology reports have led to incorrect diagnosis. Part of the problem is simply the shortage of pathologists in Canada, and digital pathology tools can make the system much more efficient and more accountable, he said.

"You can't afford not to do it."

But he said patients will be the biggest beneficiaries. The traditional way of looking at images from a microscope is to look at each section, bit by bit, and then try to piece together what is going on. The digital tools can provide a much broader view, and that can change the diagnosis, he said.

"They can see the relationships between the different parts. They can see how they are connected," Fayek said. "The most critical advantage is that the patient outcome can change."

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