

FEATURE

“Do well while do good!”

A visit to the Aurora (Breast) Imaging Technology, Inc. of North Andova, Massachusetts

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Many years ago, when I was still a VP of Science Applications International Corporation (SAIC), I heard a talk by one of the senior corporate executive VP's at one of the company's biannual conferences that any company should adhere to the motto:

“Do well while do good!”

While the English grammar quality of this phrase leaves much to be desired, the fundamental and profound essence of business perfection is unmistakable: *By all means, make money, but at the same time mitigate the ills of humanity!*

Aurora Imaging Technology, Inc is, in my opinion, one such company.

I came into contact with the CEO of the company, Olivia Cheng, totally serendipitously over dinner at a Chinese restaurant in Richardson (isn't that is where all businesses are done anyway?) My immediate impression was that Ms. Cheng, who came from Tainan, Taiwan, was a five-foot-two Asian-American dynamo! My subsequent interactions with her utterly confirmed this first impression.

Last week, I was invited by Ms. Cheng to visit the company in Massachusetts. There I met the outstanding technologists surrounding Ms. Cheng. I went partly because the company has very interesting and robust high technologies, from clinical to superconducting magnets to precise data visualization, partly because the



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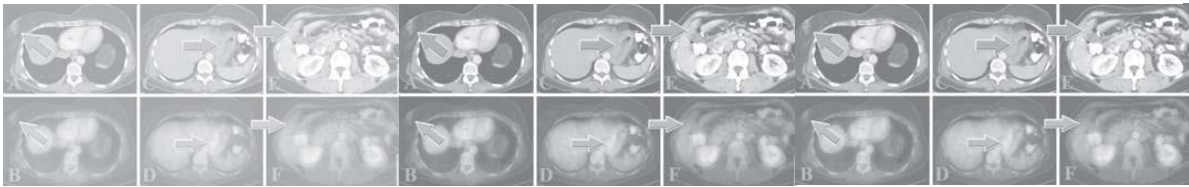
company already has a presence in Richardson and Plano (UTD's stomping grounds,) and partly because the company has already initiated an aggressive Global move, from Europe, to the Middle-East to Asia. The company is indeed growing at dizzying speed. Just in this past year, it will more than double the number of hospitals across the United States and the World deploying its system.

I am hardly an expert in breast cancer detection, nor an MRI expert (although as a physicist I do know something about nuclear magnetic resonance, a field which is the underpinning of MRI technology,) I must declare that whatever mistakes I made in this report are all due to me!

In visiting the company, I learned the following:

1. There is palpable and passionate desire, up and down in the company, to develop the most advanced technology for early breast cancer detection. It is especially heart warming to

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see that the CEO of this company is a woman who is clearly deeply committed to her business, because it can “do well while do good!”

2. Talking to some experts in Dallas and elsewhere, I learned that the genesis of this disease is certainly not completely known. In United States alone, some 41,000 women died from this horrible disease and there is about quarter of a million of new cases each year.

3. There are basically three ways for breast cancer detection: the more known mammography, which is *de facto* X-ray of the breasts, ultrasound, and MRI. Interestingly, according to clinical trials taken in Bonn, two in Netherlands and one at University of Pennsylvania, with about 100 to 200 patients each, the success rate of cancer detection of mammogram is roughly 1/3, for ultrasound the Bonn case found to be also to be roughly 1/3, while MRI’s success rate is nearly 100%.

The situation for early detection is even more acute for Asia because due to various reasons, one of them being the breast configuration, mammography is virtually inoperative for Asian women. This implies that the success ratio determined by the above mentioned sites could only be considered as an “upper-bound” on a Global scale, and in many regions of the Globe, utilization of MRI as a means for early detection may be the **only way** for now. Of course, since human beings are so ingenious, one can never rule out a new method suddenly appearing from no where!

4. I learned during this visit that the data collection from all sites with Aurora system is not only accurate but also consistent because they are all using the same protocol. My understanding is

that there is at least one problem existed in many clinical trials, which is that the participants using different systems, thus different protocols, making data collection and comparison less harmonious and less credible or reliable.

5. There are only a few companies in the world that are manufacturing MRI’s. Most are mega companies, such as GE-Medical, Siemens, Toshiba and Hitachi. However, in breast cancer detection, Aurora is the only company, according to its website (<http://www.auroramri.com>) which is “...committed to the fight against breast disease and is proud to manufacture the Aurora® 1.5T Dedicated Breast MRI System with Bilateral 3-D SpiralRODEO™. The Aurora Breast MRI System is the only FDA cleared, truly dedicated and truly integrated MRI system designed specifically for breast imaging.”

With so much attention paid to breast cancer detection nowadays, no wonder the uniqueness of Aurora technologies are receiving worldwide attention. I am also impressed with so much discussion with so many technical people in Aurora where the “comfort of the patient” and “sensitive to the patient needs and concern” are primary considerations of the design of their technologies.

6. As in all technologies, getting the necessary data is only part of the story. How to present it to the stakeholders, in this case, medical technologists and physicians (radiologists, surgeons and so on) in a visual manner, as accurate as possible, and in REAL TIME, are critical issues. One of the ways to get the right results, I learned, is through some sort of “contrast agents.” The results with and without the contrast agents are incredible. However,

contrast agents are only operative for no more than 10 minutes and so “real time” data collection also means “fast real time” data collection.

The development of the software system requires highly trained computer scientists! Also, what I saw on the screen was the 3-dimensional outline of the breasts. Of course, in order to pinpoint the cancer “hotspots,” some significant topological techniques, such as defining the coordinate system, are required. This is absolutely necessary because it will allow the radiologist to carry out precise biopsy. This reminded me very much of space travel detection, which also requires serious the branch of mathematics called topology!

For a modern 21st century research university, collaborating with industries in a sustainable manner is one of the important ingredients for it to be successful. I see that Aurora Imaging Technologies, Inc., does seem to possess all such ingredients for the University of Texas at Dallas.

First, there are already local sites for the company. This will allow our students and faculty to learn and even participate with the company and learn about this technology directly.

Second, it is situated in the heart of one of the most technological and entrepreneurial robust regions of the United States, the Greater Boston Area.

Third, it is already identifying some key areas in the Globe to expand their business. It is obvious that many of their connections are either research intensive industries, or research intensive universities. Both are excellent bridges for UTD.

Fourth, the company also possesses an incredible “gold mine” for breast cancer research. Since Aurora’s system is unique, their systems around the world are the only ones that are collecting accurate breast MRI data. The amount of data is obviously massive. In fact, I was told that each patient can and will generate approximately between quarter to half a

megabytes of data. In totality, there are already some petabytes of data lying around. Thus, I cannot imagine that intelligently archiving, processing and datamining these data would not give breast cancer researchers a deeper understanding of the disease. Indeed, this form of breast cancer GIS will surely reveal hitherto undiscovered information about this horrible disease.

Thus, I see that Aurora is clearly a company that is “doing well while doing good!”

For additional information, I urge those interested to view the video from the website <http://www.auroramri.com/mri/education/video.html>.

The host of the video is Dr. Steven Harms, Chief Medical Officer of Aurora. In 1998, he received the Award of Scientific Distinction from the Susan G. Komen Foundation. In 1996 he was given the Annual William Beaumont Award by the American Medical Association for the outstanding physician in the nation under the age of 50. He also serves as Chairman of the International Working Group for Breast MRI, and is a past chairman of the Radiological Devices Panel of the FDA. Dr. Harms received his M.D. Degree from the University of Arkansas for Medical Sciences in 1978.”