

Movers and Shakers Interview
Srinivasan Seshadri – CEO, Strand Genomics

29 October 2003



Srinivasan “Sesh” Seshadri, Ph.D. has several years of experience in the industry as well as academia performing active research and guiding R&D projects to commercial success. His undergraduate education was at the Indian Institute of Technology, Madras, and he obtained his Masters and Ph.D. in Data Management Systems from University of Wisconsin, Madison. Sesh joined the Computer Science Faculty of the Indian Institute of Technology, Mumbai in 1992 and apart from being an active researcher in the areas of database systems, distributed systems and computer networking, he consulted with several database vendors and end users on issues related to data management and data analysis. Subsequently, Sesh joined Bell Labs, Lucent Technologies. He served as the Director, Distributed Computing Research Department and Chief Technology Officer, Network Management Business Unit, Optical Networking Group in Bell Labs, Lucent Technologies before co-founding Strand.

Frost & Sullivan: Strand Genomics has exciting technology for the microarray and drug discovery space. Can you provide us with a few highlights in the history of Strand and a glimpse of the future?

Srinivasan Seshadri: Strand was founded in November 2000 as a spin off from the Indian Institute of Science. Our founders all have a background in computational sciences, and that is where our strengths lie. Our thesis, which has been borne out by recent R&D efforts, is that computational sciences and life sciences go hand in hand. We believe that the bottleneck has already shifted from data generation to data analysis, with high throughput techniques catalyzing this trend. In particular, microarrays, sequencing and mass spectrometry are all contributing positively to this trend. Looking 15 years into the future, we believe that computational sciences will play a key role in initial hypothesis generation, with experimental techniques being used to validate those findings. We see a three-part cycle, where data is generated by experiments, analyzed by computational techniques, and then computer models are used to direct the next set of experiments. In practice, we are some distance away from this ideal model. Thus, we are pursuing niche applications, such as microarray analysis, which will provide an initial commercial role in the drug discovery process.

Frost & Sullivan: Would you please tell us about the products that Strand Genomics has developed for the drug discovery industry?

Srinivasan Seshadri: Our first product was designed for the high throughput crystallography space. We built a crystal identification software product, Sphatika, which consists of a high-end image analysis system. From there, we shifted our focus to the microarray space. We have three distinct areas of microarray software, oligo design software, image analysis, and data visualization & mining. Data visualization and mining is our main area of focus and Avadis is our flagship product. Microarray analysis is a vertical market for which our data mining software is very well optimized. The workflows, UIs, statistical methods, and language of Avadis are already optimized for microarrays. However, Avadis is a generic data visualization and mining tools. Apart from microarrays, we also have software that is about to be released for the ADME/Tox space. Avadis grew out of a series of custom engagements that we undertook in the past. These engagements were across the board, including gene expression analysis, clinical data analysis, and mass spectrometry analysis. Thus, the Avadis platform has been proven on a variety of

areas, allowing us to develop applications specific for each vertical. For example, we are currently conducting internal research to optimize Avadis for biomarker research.

Frost & Sullivan: What distinguishes Avadis from other data mining applications?

Srinivasan Seshadri: The integration of data mining and visualization in a fashion that allows researchers to analyze data in an interactive manner. Our data mining abilities are very strong. When coupled with the unique visualization software, Avadis makes it a pleasure for the researchers to work with the data. They don't have to write complex programs or scripts. Our interface is very intuitive and better enables the researcher to understand the results of the data. We have received very positive feedback from our clients about the interface and its ease of use. In addition, we have an enterprise edition that is ideal for large collaborative institutions and companies. This edition allows information to be shared and data to be integrated from a variety of different sources. Essentially, this Avadis has an integration platform that allows a third party vendor, or the client, to easily integrate very disparate types of data.

Frost & Sullivan: Recently you announced an agreement with Affymetrix. Would you please describe how this benefits Strand Genomics?

Srinivasan Seshadri: It is part of our partnering strategy and we would like to integrate with other microarray technology players in the long run . We have obtained a license that enables us to import Affymetrix's proprietary data format into Avadis. This allows Avadis to work seamlessly with Affymetrix data. From a market perspective, Affymetrix is a leader in the industrial microarray space. Thus, it is essential that Avadis work well with Affymetrix data.

Frost & Sullivan: What products can the drug discovery community expect from Strand in the next year?

Srinivasan Seshadri: Within the microarray space, we currently have extensive software offerings. We are constantly looking to improve the interface so that it delivers maximum value to the clients. We are also aggressively developing software for the predictive ADME space. In particular, we have developed applications that are used to predict pharmacokinetic parameters. The key to reducing drug development costs is to reduce the number of costly failures in clinical development. Since as many as 25 to 30% of drugs fail as a result of undesirable ADME characteristics, software that better predicts pharmacokinetic parameters can enable pharmaceutical companies to focus on compounds that are less likely to fail in clinical trials. Our software is able to predict, in humans, the pharmacokinetic parameters of a given compound. Our prediction models are based on descriptors of the lead compound. We analyze numerous lead compounds as a training set. Our training set consists of about 1000 compounds, curated from public information. Our accuracy, when the model is used on compounds that aren't part of the training set, is about 85 to 90%. This is a key application of data mining in life sciences. We have used existing data to build models that are then used to predict the behavior of new compounds.

Frost & Sullivan: If you had one thing for your clients to know about Strand, what would it be?

Srinivasan Seshadri: We have a collection of experts in computational science, IT, biology, statistics, chemistry and medicine focused on developing solutions for relevant industry problems. Not only do we create solutions and tools, but we also follow up with professional services where we embellish, customize and enhance our solutions to address specific needs of our clients.

Frost & Sullivan: The same questions for your investors and partners, what would you like them to know about Strand?

Srinivasan Seshadri: We have a great deal of expertise in data visualization and mining. We have drawn from this experience to build solutions for a few specific verticals. We are looking for partners in other verticals where our expertise in data visualization and mining can be deployed.

We are also working for horizontal partnerships, where together we can provide best in class, end-to-end solutions. We believe that the Avadis product will enable partners to increase market share. There is a great synergy between data integration, data warehousing, data collection, LIMS platforms, and a data analysis and visualization product.

We are definitely a unique company. We have a blend of life scientists, computational scientists, statisticians, and medical doctors. Because of this breadth of backgrounds, we are able to provide solutions that are relevant to our clients' needs. We work directly with our customers to develop solutions that are most applicable. We bring an excellent pedigree with regards to our background and our experience in the life sciences industry. We have a very talented team and, by nature of our location in India, we also have a very competitive cost basis.

If you are interested in a Movers & Shakers Interview, please contact:
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