

Bioinformatics is happening

Bioinformatics refers to the use of computing/informatics in biology. Biology as an area is “hot”, with some people predicting biotechnology to be the next wave after information technology. Biotechnology includes biomaterials, bioprocessing, genetic engineering, bio-agriculture, cloning and many others. Bioinformatics includes application of high-end computing power (modelling, visualization, database search, large data storage) for molecular modelling, gene synthesis (part of the famous human genome project), drug discovery, simulation, new material synthesis and other related areas. Presently, the field that drives bioinformatics is the drug discovery process, which includes the techniques of data mining, scientific visualization, information storage and retrieval of special structure data, and simulation of very long DNA sequences. The pharmaceutical industry and the health food industry are pumping in billions of dollars into this area.

Bioinformatics will see visionaries who have an uncanny knack of combining the biological and computing disciplines. In that sense, success would belong to those who cross the borders well without losing their core; their base could be either of the disciplines. But, deep knowledge of both the fields will be necessary before any significant success is possible. Also, this emergent field ultimately would be dictated by domain competency. There is a window of opportunity for bioinformatics technology professionals when biotechnology professionals would need infotech professionals to make them comfortable in using the power of computing – particularly in graphics, data mining, large-scale storage, special data structures, unusual pattern matching algorithms, etc. Once the biotechnology professionals master these techniques, bioinformatics would be driven and dominated by biotech professionals. For those with biology background, bioinformatics could be a gold mine if they can manage to master deep computing skills.

Companies such as Biocon in Bangalore, Dr. Reddy’s Laboratories in Hyderabad and Ranbaxy in Delhi are excellent examples in the Indian context. Venture capitalists are funding significant doses of money. Strand Genomics founded by Profs. Vijay Chandru and Ramesh Hariharan at the Indian Institute of Science, Bangalore, is another example of venture capital funding bioinformatics start-ups. Biotechnology companies such as Biocon, Astra Zeneca and Dr. Reddy’s Laboratories are all investing in bioinformatics. Information technology companies like Infosys, Tata Consultancy Services and Satyam are starting (or planning to start) activities in this emerging area. Worldwide, there is interest at many levels – consulting companies such as McKinsey, market research companies, hardware and software companies (Compaq, IBM, Microsoft), universities, research labs and venture capitalists. (The Financial Express, 5 April 2002)